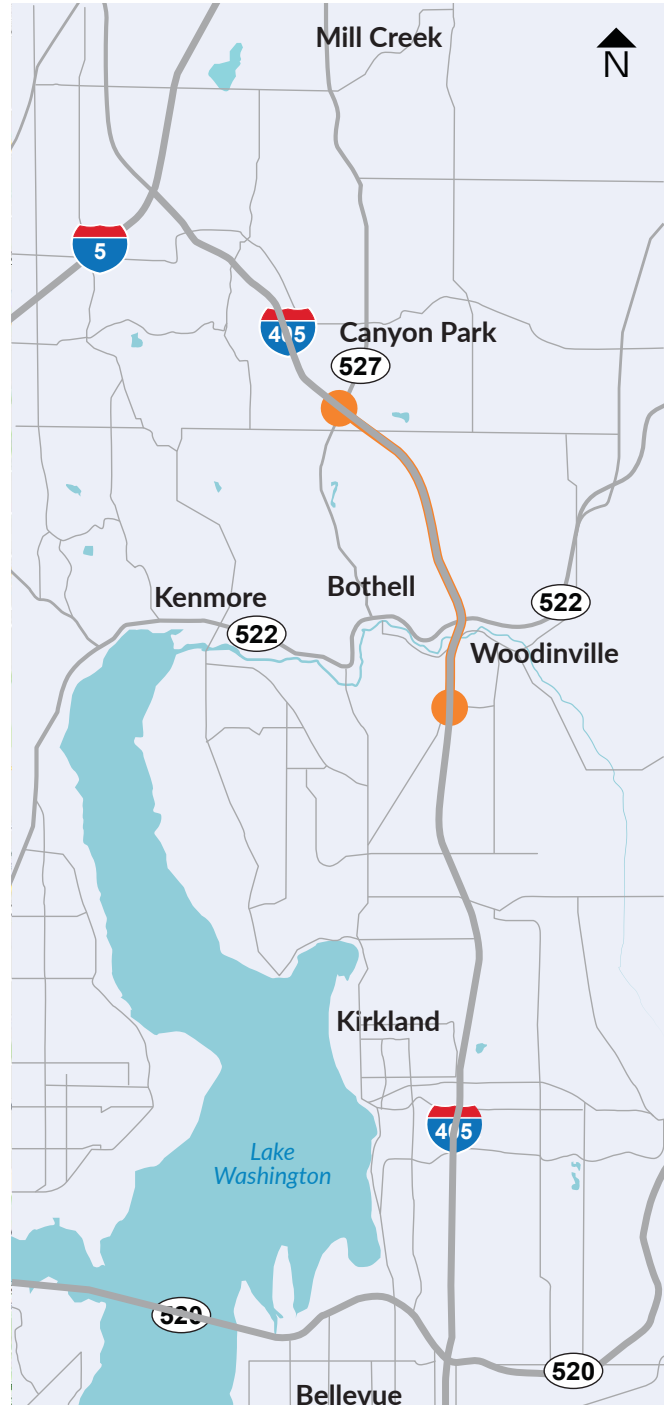


ENVIRONMENTAL ASSESSMENT

Appendix M: Draft Wetland and Stream Mitigation Report

I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project
(MP 21.79 to 27.06)



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WETLAND AND STREAM MITIGATION REPORT

I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

King and Snohomish Counties, WA

XL 5446
WIN A40561Z

**Prepared by
I-405/SR 167 Megaprogram**

March 2020



**Washington State
Department of Transportation**

WETLAND AND STREAM MITIGATION REPORT

I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project

March 2020

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Executive Summary

The Washington State Department of Transportation (WSDOT) proposes to construct roadway improvements to address increasing traffic congestion and improve transit reliability on Interstate 405 (I-405). The SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project (Project) will add a single express toll lane (ETL) in each direction to create a dual ETL system. The new lanes are designed to address congestion issues on the northern portion of I-405 and provide consistency with the existing dual ETL system to the south between NE Sixth Street in Bellevue and just south of SR 522 in Bothell.

The Project will result in unavoidable permanent impacts to 21 wetlands and long-term temporary construction impacts to 13 wetlands. Portions of seven wetlands will be converted into streams, and one wetland will experience indirect impacts. The Project will also permanently impact wetland buffers that are associated with 13 wetlands. The affected wetlands vary in quality from Category II to Category IV based on the Washington State Department of Ecology (Ecology) Wetland Rating System for Western Washington. The Category IV wetlands are located in roadside ditches and swales and are limited in vegetation diversity and habitat function due to the presence of the adjacent freeway and continuous maintenance practices. Five Category II wetlands in the Project area will be impacted by road widening, the replacement of an existing fish barrier with a restored stream connection, and expansion of the existing Canyon Park Park and Ride.

The project has the potential to impact six streams and associated buffers due to construction activities related to pier removals at the Sammamish River, fish barrier corrections on four streams, and wall installation activities proposed along unnamed tributary (UNT) to Par Creek. The fish-bearing streams that will be permanently and/or temporarily impacted are:

- Sammamish River
- Par Creek
- UNT to Par Creek
- Stream 25.0L
- North Fork Perry Creek
- Queensborough Creek

WSDOT has avoided and minimized impacts to wetlands, streams, and associated buffers to the greatest extent practicable. Total avoidance was not possible due to the location of the Project along the existing WSDOT right of way, the constraints associated with water crossing design and safety guidelines, and the intentional beneficial effects to wetlands, streams, and buffers from proposed restoration work at existing fish barriers. WSDOT proposes off-site mitigation for unavoidable impacts to wetlands at an approved mitigation bank and on-site mitigation for stream impacts. Currently, WSDOT plans to provide compensatory wetland mitigation at the Happy Valley Mitigation Site and the Keller Farm Mitigation Bank. Stream impacts will be restored on site after stream connections are constructed, and stream buffer mitigation will occur on sites adjacent to UNT to Par Creek and Par Creek. Wetland buffers under City of Bothell jurisdiction will also be mitigated at these sites.

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- Attachment A — Wetland, Stream and Buffer Impact Exhibits
- Attachment B — Impacted Wetland Summary Tables
- Attachment C — Impacted Stream Summary Tables
- Attachment D — Conceptual Mitigation Plan

Chapter 1. Introduction

The Washington State Department of Transportation (WSDOT) and Federal Highway Administration (FHWA) propose to construct roadway improvements on Interstate 405 (I-405) between the State Route (SR) 522 vicinity (milepost [MP] 21.79) and SR 527 (MP 27.06) to improve mobility and reliability in the I-405 express toll lanes (ETLs) in the cities of Kirkland and Bothell. The purpose of this Wetland and Stream Mitigation Report is to support environmental documentation and permit applications, and to meet local, state, and federal requirements for mitigation for the I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project (Project).

This report provides a brief project overview; an assessment of impacts to wetlands, streams, and their associated buffers; and a summary of proposed compensatory mitigation for unavoidable permanent impacts to those resources. A more detailed description of existing conditions for the wetlands and streams discussed in this report can be found in the I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project, *Wetland and Stream Assessment Report*.

The Project will be constructed using the design-build method of project delivery, in which WSDOT executes a single contract with one entity for design and construction services to provide a finished product. With design-build projects, contractors have the flexibility to offer innovative and cost-effective alternatives to deliver the Project, improve project performance, and reduce project effects. Some design modifications that the contractor may propose could affect the impacts and corresponding mitigation discussed in this report. The approach will be refined and finalized by the design-build contractor prior to construction.

Chapter 2. Project Description

2.1. Project Overview

The Project extends along I-405 and is located primarily within the City of Bothell between milepost (MP) 21.79 and MP 27.06. The Project begins south of the I-405/SR 522 interchange and continues to just north of the I-405/SR 527 interchange. Table 1 summarizes the proposed project improvements, and Figure 1, Sheets 1 through 5, provides a more detailed visual depiction of Project components.

Table 1. Project Description

Project Element	Proposed Improvements
I-405 lanes and shoulders from SR 522 to SR 527	<p>Create a dual ETL system from MP 21.79 (south of the I-405/SR 522 interchange) to MP 27.06 (just north of the I-405/SR 527 interchange).</p> <ul style="list-style-type: none"> From MP 21.79 to MP 22.30: Restripe existing lanes to create a dual ETL system. From MP 22.30 to MP 26.30: Resurface and widen I-405 to add one ETL in each direction. From MP 26.30 to MP 27.06: Widen I-405 to construct direct access ramps and maintain a single ETL starting near MP 26.30.
I-405 tolling from SR 522 to SR 527	<p>Construct new tolling gantries to collect tolls for the ETLs and direct access ramps.</p>
I-405/SR 522 interchange area	<ul style="list-style-type: none"> Construct new direct access ramps and two inline transit stations (one in each direction) in the I-405 median. Transit stations would include station platforms, signage, artwork, lighting, fare machines, and site furnishing such as shelters, lean rails, benches, bollards, bicycle parking, and trash receptacles. Construct a bus station and turnaround loop, pick-up and drop-off facilities, and new nonmotorized connection to the North Creek Trail near the SR 522 interchange. Funding and construction timeline to be coordinated with local transit agencies. Construct new northbound bridge through the SR 522 interchange. Reconfigure northbound I-405 to eastbound SR 522 ramp from one lane to two lanes. Reconfigure I-405 on- and off-ramps. <ul style="list-style-type: none"> Realign southbound I-405 to westbound SR 522 ramp. Realign eastbound and westbound SR 522 ramps to northbound I-405.
SR 522 roadway	<p>Add three signalized intersections, which would change where the freeway portion of SR 522 begins and ends. Signals would be added at the following locations:</p> <ul style="list-style-type: none"> The northbound I-405 to westbound SR 522 off-ramp and the eastbound SR 522 to northbound I-405 on-ramp. The southbound I-405 to eastbound SR 522 ramp. Between the above two locations where the new I-405 ETL direct access ramps connect with SR 522.
228th Street SE	<p>Widen the northbound I-405 bridge over 228th Street SE.</p>

Project Element	Proposed Improvements
SR 527 interchange area	<ul style="list-style-type: none"> • Construct new direct access ramps to the north, south and east, and two inline transit stations (one in each direction) in the I-405 median just south of SR 527 at 17th Avenue SE. Transit stations would include station platforms, signage, artwork, lighting, fare machines, and site furnishing such as shelters, lean rails, benches, bollards, bicycle parking, and trash receptacles. • Reconstruct the pedestrian bridge over I-405.
17th Avenue SE, 220th Street SE, SR 527	Reconfigure 17th Avenue SE and portions of 220th Street SE and SR 527 to include a roundabout at the Canyon Park Park and Ride, bicycle and pedestrian improvements, and improvements at the SR 527 and 17th Avenue SE intersections with 220th Street SE.
Fish barrier corrections	<p>Replace five fish barriers with restored stream connections at the following streams:</p> <ul style="list-style-type: none"> • Par Creek (WDFW ID 993083) • Stream 25.0L (WDFW ID 993104) • North Fork of Perry Creek (WDFW ID 08.0070 A 0.25) • Two fish barriers at Queensborough Creek (WDFW ID 993084 and 993109)
Sammamish River bridges	<ul style="list-style-type: none"> • Remove the existing northbound I-405 to eastbound SR 522 bridge over the Sammamish River, including two bridge piers within the OHWM. • Remove the existing northbound I-405 to westbound SR 522 bridge over the Sammamish River, including two bridge piers within the OHWM. • Build a new bridge for northbound I-405 traffic over the Sammamish River. • Build a new bridge over the Sammamish River for the new direct access ramp at SR 522. • Build a new bridge over the Sammamish River for the northbound I-405 to SR 522 ramp.
Noise and retaining walls	<ul style="list-style-type: none"> • Construct three new noise walls near NE 160th Street and SR 527. See Figure 1, Sheets 1, 4, and 5. • Construct several new retaining walls. See Figure 1, Sheets 1 through 5.
Stormwater management	<ul style="list-style-type: none"> • Provide enhanced treatment for an area equivalent to 100 percent of new PGIS (approximately 24 acres). • Retrofit about 20 acres of existing untreated PGIS and continue to treat stormwater from the approximately 44 acres of PGIS that currently receives treatment. • Construct three new stormwater outfalls, one on the Sammamish River and two on the North Fork of Perry Creek.
Construction duration	Construction is expected to last 3 to 4 years, beginning in 2021.

SR = State Route; ETL = express toll lane; MP = milepost; I = Interstate; OHWM = ordinary high water mark; PGIS = pollution-generating impervious surfaces

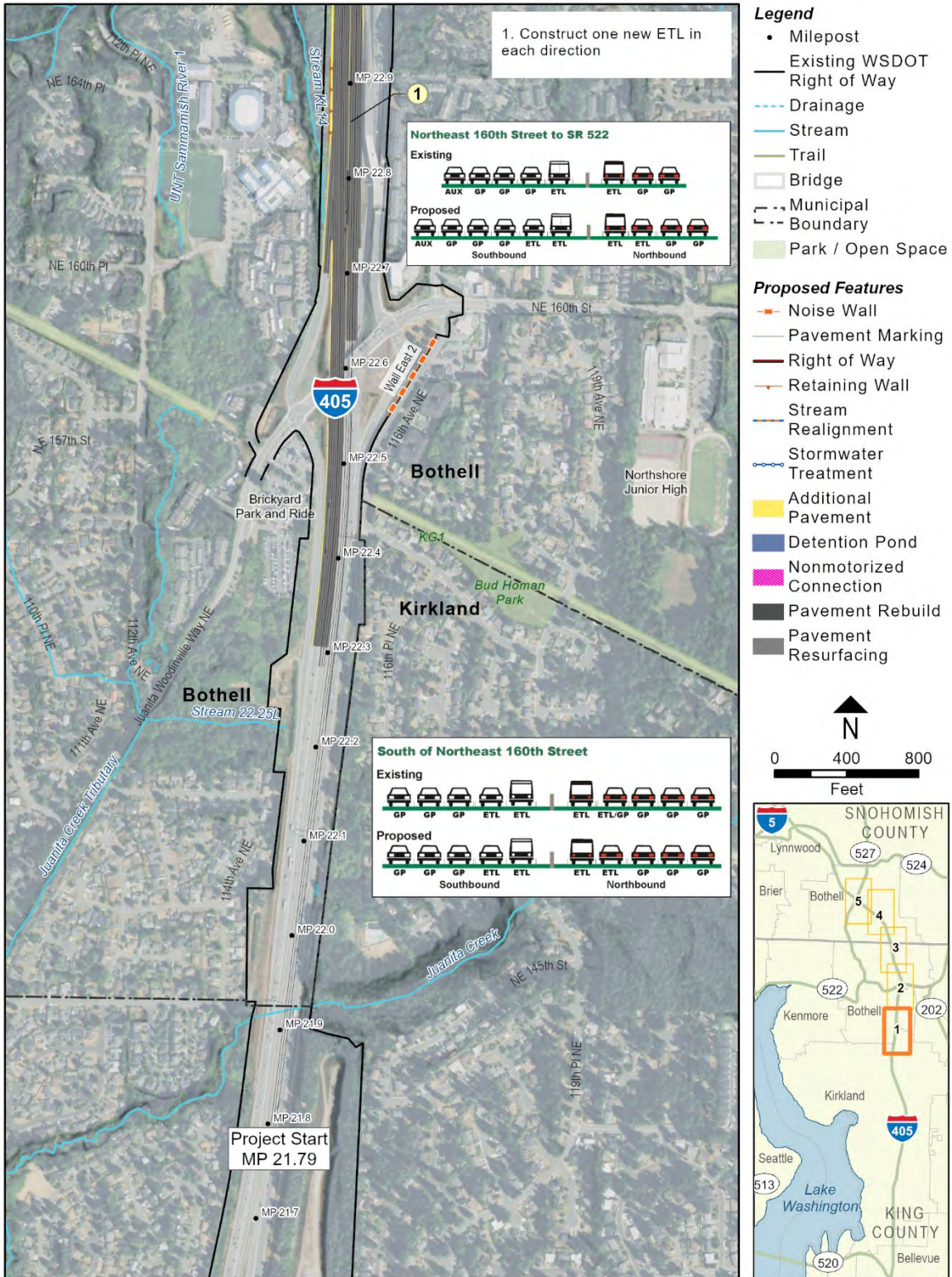


Figure 1. I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project, Sheet 1 of 5

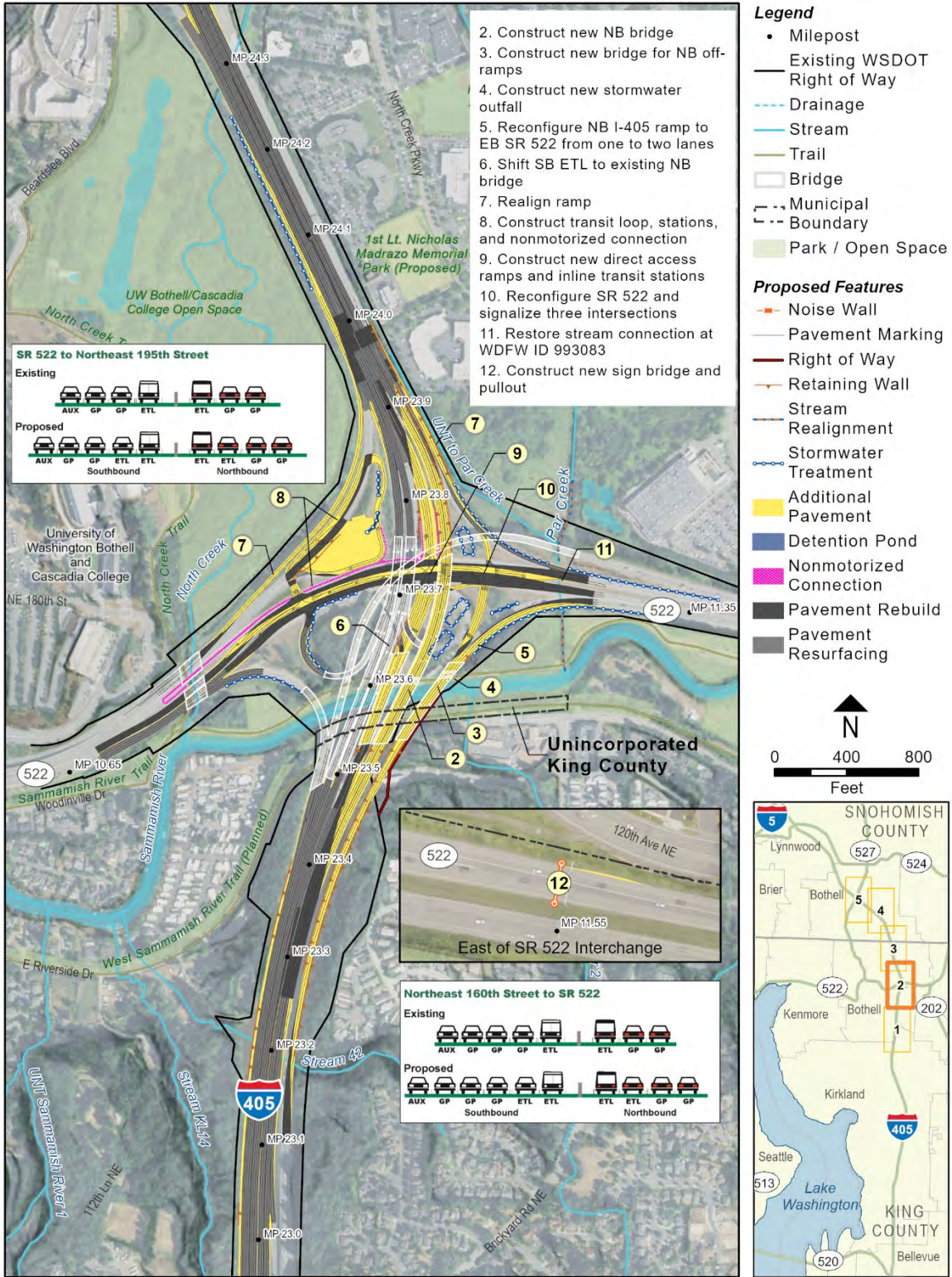


Figure 1. I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project, Sheet 2 of 5

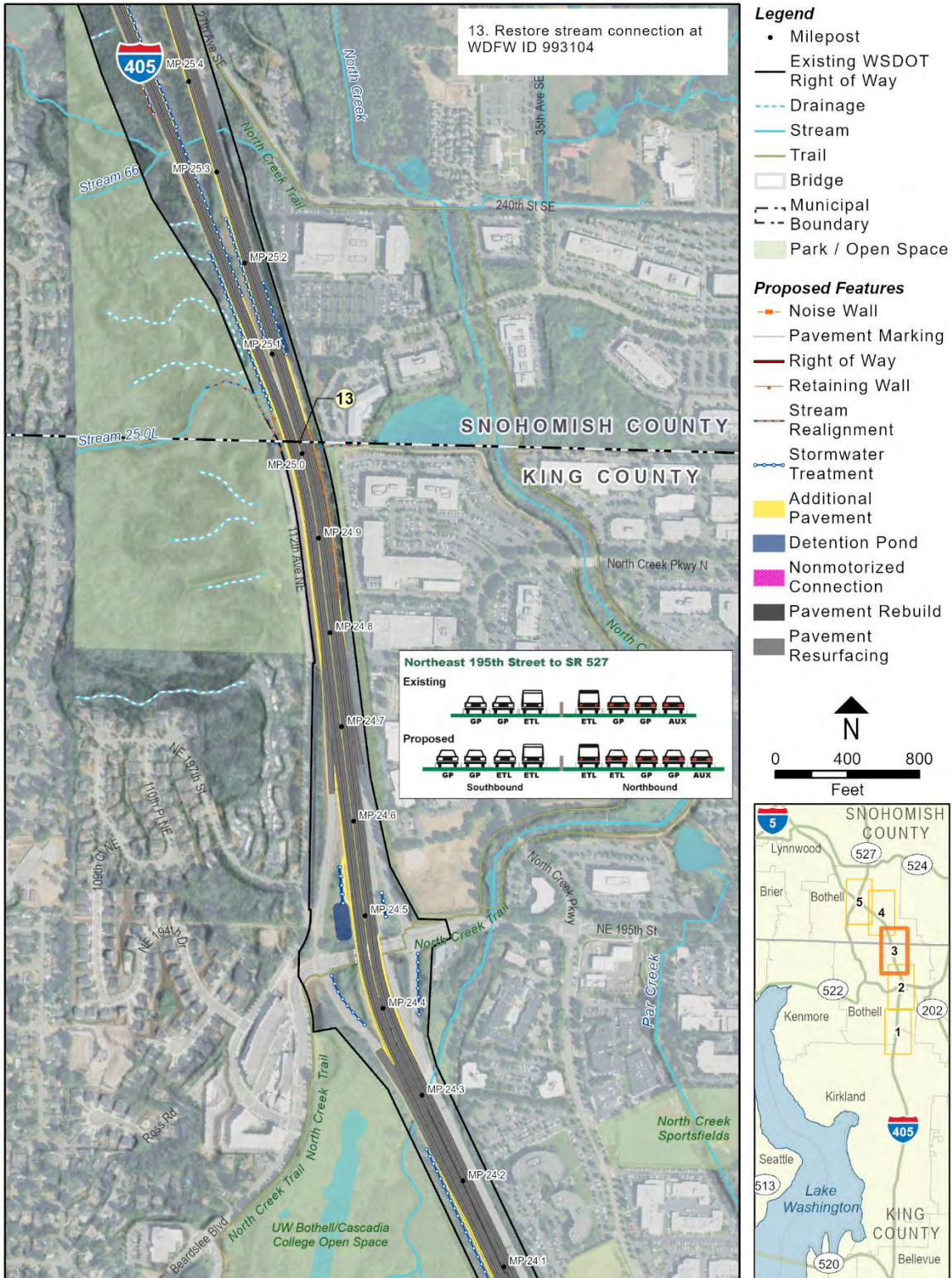


Figure 1. I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project, Sheet 3 of 5



Figure 1. I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project, Sheet 4 of 5

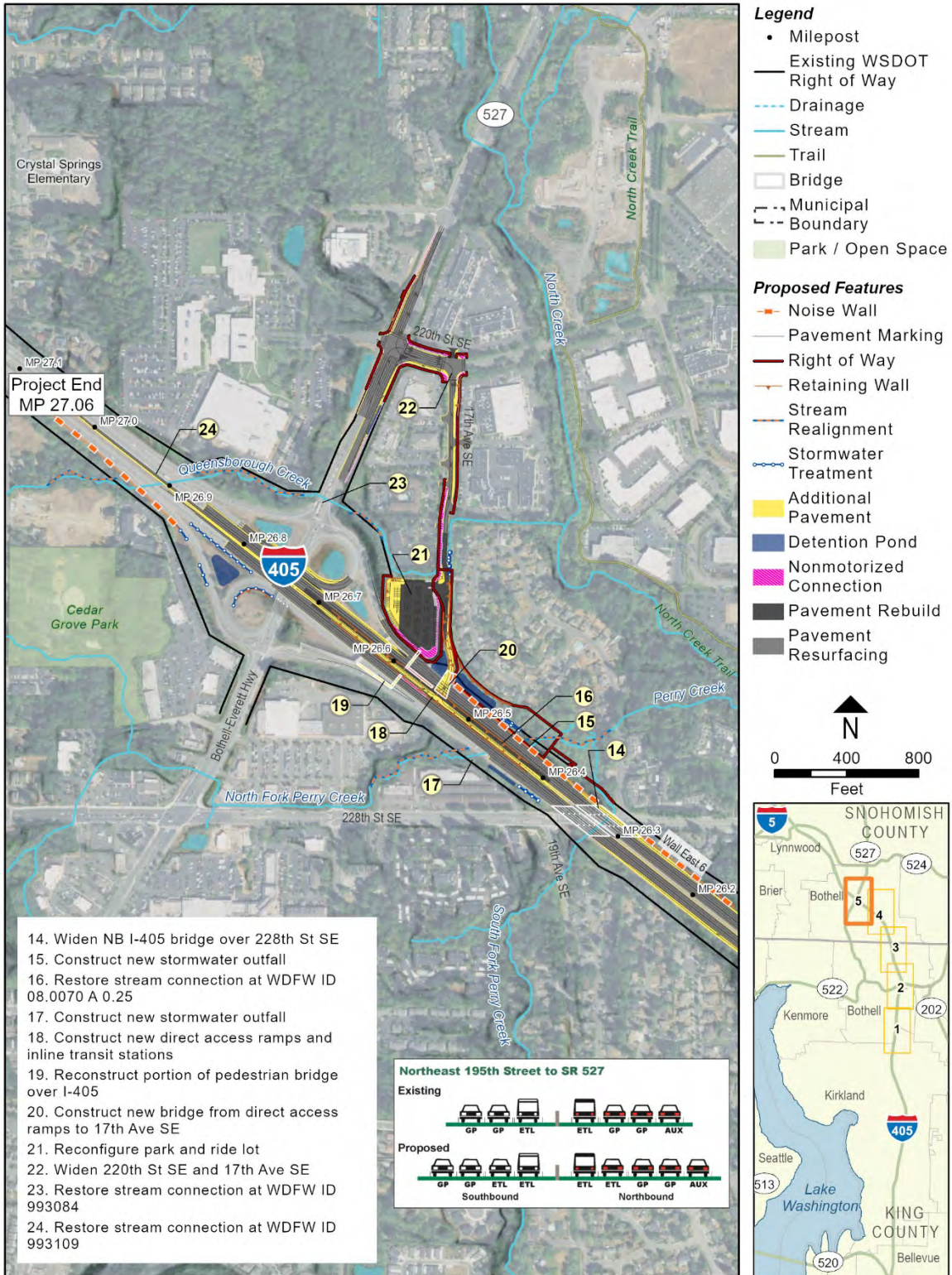


Figure 1. I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project, Sheet 5 of 5

2.2. Project Schedule

The Project is currently in the environmental review and preliminary engineering phase, with construction expected to occur between 2021 and 2025. The design-build contractor will work with WSDOT to develop a more detailed schedule for final design and construction. The on-site mitigation at unnamed tributary (UNT) to Par Creek and Par Creek is expected to occur concurrently with construction of the Project.

Chapter 3. Impact Avoidance and Minimization

WSDOT avoided and minimized wetland impacts to the greatest extent feasible in the preliminary design; however, the design-builder may identify further minimization measures through final design and construction of the Project. The preliminary design uses several avoidance and minimization opportunities, including selective widening, widening to the median, and incorporating steeper slopes and retaining walls. The Project includes the installation of media filter drains in select locations, which in some cases limits the use of over-steepened slopes. A summary of avoidance and minimization of permanent wetland impacts is provided in Table 2.

Table 2. Wetland Avoidance and Minimization Measures

Wetland	Wetland Area (acres)	Potential Impact Prior to Avoidance and Minimization (acres)	Proposed Impact (acres)	Avoidance and Minimization Efforts
21.94R	0.127	0	0	NA
22.11R	0.074	0	0	NA
22.21L	0.006	0	0	NA
22.68R	0.064	0	0	NA
22.85L	0.096	0.096	0	Avoided all impacts by staying within the existing footprint and shifting the proposed wall to the north.
23.32R	0.029	0	0	NA
23.35R	0.013	0	0	NA
23.37R	0.037	0	0	NA
23.42R	0.093	0.093	0.015	Added a retaining wall to reduce cut into the hillside and wetland impacts.
23.45R	0.224	0.013	0	Added a retaining wall to reduce cut into the hillside and avoid wetland impacts.
23.46R	0.091	0.091	0.091	Impacts unavoidable due to construction of a new ramp. No practical methods for reduction as this is a new ramp location, and even with minimization efforts, it was determined that the remaining portion of the unaffected wetland would no longer provide the same level of wetland function.
23.47R	0.092	0	0	NA
23.50R	0.197	0.001	0	Added a retaining wall to avoid wetland impacts.
10.69R	0.021	0	0	NA
10.78R	0.258	0	0	NA
10.80R	0.410	0.410	0	Impacts avoided by locating a media filter drain in the existing fill prism.

Wetland	Wetland Area (acres)	Potential Impact Prior to Avoidance and Minimization (acres)	Proposed Impact (acres)	Avoidance and Minimization Efforts
10.90R	0.152	0.026	0.026	Impacts unavoidable due to close proximity to the existing roadway.
11.15R	0.473	0.473	0.473	Impacts unavoidable due to construction of the new off-ramp and stormwater treatment facility. Reduction of impacts was considered but it was determined that the remaining portion of the unaffected wetland would no longer provide the same level of wetland function.
11.35L	0.183	0	0	NA
11.65L	0.167	0	0	NA
23.65L	0.645	0	0	NA
23.80L	2.212	2.212	2.212	Impacts unavoidable due to construction of a bus station and turnaround loop. No practical methods for reduction.
23.80R	1.328	1.328	1.328	Impacts unavoidable due to construction of a new I-405 northbound lane, new ramp, and stormwater facility. No practical methods for reduction.
23.81R	6.014	0	0	NA
24.00L	1.256	0.362	0.016	Impacts minimized by keeping the off-ramp at the current location.
24.20R	0.394	0.394	0	Impacts avoided by not widening the northbound I-405 lane in this section.
24.30R	0.189	0.090	0	Impacts avoided by not widening the northbound I-405 lane in this section.
24.35L	21.439	0.181	0	Impacts avoided by keeping the on-ramp at the current location.
24.35R	0.504	0.052	0	Impacts avoided by keeping the off-ramp at the current location.
25.03R	5.280	5.280	0.004	Impacts minimized by limiting excavation in the wetland.
25.08L	0.140	0.140	0.140	Impacts unavoidable due to construction of fish barrier correction and a media filter drain. No practical methods for reduction. Even with minimization efforts, it was determined that the remaining portion of the unaffected wetland would no longer provide the same level of wetland function.
25.22L	0.125	0.125	0.125	Impacts unavoidable due to limited locations available for stormwater treatment facilities along I-405.
25.28R	0.037	0	0	NA

Wetland	Wetland Area (acres)	Potential Impact Prior to Avoidance and Minimization (acres)	Proposed Impact (acres)	Avoidance and Minimization Efforts
25.33R	0.182	0	0	NA
25.34L	0.017	0	0	NA
25.66L	0.044	0.044	0.044	Impacts unavoidable due to limited locations available for stormwater treatment facilities along I-405.
26.10L	0.117	0.027	0.027	Impacts unavoidable due to limited locations available for stormwater treatment facilities along I-405.
26.13R	11.486	0.123	0.123	Impacts unavoidable due to sloping.
26.15L	0.110	0.110	0.016	Shifted stormwater treatment facilities outside of the wetland to minimize impacts.
26.32L	0.024	0	0	NA
26.35R	3.122	0.005	0.005	Impacts unavoidable. No practical methods for reduction as this is a fish barrier correction.
26.50R	0.105	0.105	0.105	Impacts unavoidable. Relocation of the stormwater pond is considered infeasible.
26.55L	0.205	0.055	0.055	Impacts unavoidable. No practical methods for reduction as this is a fish barrier correction.
26.62R	0.006	0	0	Impacts avoided by not widening 17th Avenue SE.
26.65R	0.045	0	0	Impacts avoided by not widening Canyon Park Park and Ride to the north.
26.70R	0.738	0.161	0.161	Impacts unavoidable. No practical methods for reduction due to space constraints on adding a direct access ramp south of SR 527 and maintaining the existing capacity of the Canyon Park Park and Ride.
26.77R	0.030	0.013	0.013	Impacts unavoidable. No practical methods for reduction as this is a fish barrier connection.
26.78R	0.038	0.020	0.020	Impacts unavoidable. No practical methods for reduction as this is a fish barrier correction.
26.79R	0.018	0.005	0.005	Impacts unavoidable. No practical methods for reduction as this is a fish barrier correction.
26.80R	0.008	0	0	NA
27.30M	0.544	0	0	NA
27.45L	0.151	0	0	NA

NA = not applicable

Chapter 4. Wetland and Wetland Buffer Impacts

The Project, as proposed, will result in permanent and temporary impacts to wetlands and associated buffers. Permanent impacts occur when a wetland is filled or excavated such that it becomes non-wetland, or its function is significantly reduced. These impacts typically occur from cut and fill activities. Permanent impacts also include indirect impacts, when the Project results in reduction or elimination of wetland functions in the remaining wetland area, or when alterations to surface water flows separate the remnant wetland from its hydrologic source and prevent it from maintaining wetland hydrology. Reduction of wetland functions occurs when the wetland area is reduced to an extent that it is unable to provide some or all of its pre-disturbance functions.

Typically impacts are considered temporary when the impacts do not result in permanent changes to wetland areas or functions. Temporary impacts are divided into long-term and short-term temporary impacts. Typically short-term temporary impacts are restored within a year after construction is complete, and long-term temporary impacts can be restored over some period of time, but not within a year (Ecology et al. 2006a). For the Project, WSDOT considers vegetation clearing to be a long-term temporary impact in areas where only vegetation is cut, and no other disturbance occurs during construction. No short-term temporary impacts are accounted for in the Project. Grubbing or soil disturbance is typically considered a permanent impact and is evaluated on a case-by-case basis.

WSDOT assessed potential impacts to wetlands using proposed Project construction footprints, cut and fill lines, and cross-sections showing existing and proposed grades. WSDOT calculated the area of impact using construction footprints in computer-aided drafting software. Permanent impact areas adjacent to cut and fill locations include an additional 5-foot width to allow for clearing and grubbing of vegetation at the base of all new infrastructure, and potential small changes in the Project footprint. Temporary impact areas are estimated based on 5-foot offset from the limits of permanent impact areas. Impact calculations were obtained from the design team in square feet and rounded to the nearest thousandths of an acre. Total acres are determined from the summed square footage to most accurately determine total expected Project impacts.

Wetland functions for impacted wetlands were evaluated using the Ecology wetland rating form and rated as Category I, II, III, or IV (Hruby 2014). Category I is considered the highest functioning wetland, and Category IV is considered the lowest functioning wetland. To determine an accurate assessment of a wetland's functional values, function scores were calculated based on the entire wetland system, when applicable, not just the delineated portion of wetland within the study area.

A summary of proposed wetland and buffer impacts is shown in Attachment A and provided in Table 3. Permanent impacts to wetlands are further categorized into two different impact types, impacts due to roadway improvements and those related to fish barrier corrections. Impacts to wetlands and wetland buffers are discussed further below. Summary tables in Attachment B provide more detailed information for each of the impacted wetlands. Additional details about each wetland, including rating forms and field data forms, are included in the Project *Wetland and Stream Assessment Report*.

Table 3. Wetland and Wetland Buffer Impact Summary

Wetland	Wetland Rating	Wetland Impact (acre)				Buffer Impact (acre)	
		Permanent ^a	Long-term Temporary	Wetland to Stream Conversion	Indirect Impact	Permanent	Temporary
22.85L	IV	0	0	0	0	0.025	0.011
23.42R	IV	0.015	0.001	0	0	0.205	0.016
23.46R	IV	0.091	0	0	0	0	0
23.50R	IV	0	0.001	0	0	0.008	0.004
10.69R	III	0	0	0	0	0	0.008
10.90R	IV	0.026	0.009	0	0	0.104	0.039
11.15R	IV	0.473	0	0	0	0	0
23.65L	III	0	0	0	0	0.002	0.005
23.80L	III	2.212	0	0	0	0	0
23.80R	III	1.328	0	0	0	0	0
24.00L	III	0.016	0.027	0	0	0.341	0.145
24.20R	IV	0	0.002	0	0	0	0.005
24.35R	III	0	0	0	0	0.008	0
25.03R	II	0.004 (FBC)	0	0.001	0.756	0	0.068
25.08L	III	0.089 (RD) 0.051 (FBC)	0	0	0	0	0
25.22L	III	0.125	0	0	0	0	0
25.34L	III	0	0	0	0	0.025	0.017
25.66L	IV	0.044	0	0	0	0	0
26.10L	IV	0.027	0.008	0	0	0.079	0.018
26.13R	II	0.123	0.083	0	0	0.490	0.044
26.15L	III	0.016	0.010	0	0	0.186	0.061
26.35R	II	0.005 (FBC)	0.010	0.012	0	0.274	0.076
26.50R	III	0.105	0	0	0	0	0
26.55L	III	0.055 (FBC)	0.003	0.014	0	0	0.124
26.70R	II	0.139 (RD) 0.022 (FBC)	0.016	0.004	0	0.300	0.045
26.77R	III	0.013 (FBC)	0.002	0.001	0	0	0.022
26.78R	III	0.020 (FBC)	0.001	0.001	0	0	0.038
26.79R	III	0.005 (FBC)	0	0.001	0	0	0.017
Totals^b		4.828 (RD) 0.175 (FBC)	0.173	0.035	0.756	2.048	0.763

RD = roadway improvements; FBC = fish barrier correction

^a Permanent wetland impacts are related to roadway improvements (RD) unless otherwise noted.

^b Total represents combined direct permanent and indirect permanent impacts.

4.1. Wetland 22.85L

Wetland 22.85L is a slope wetland located west of I-405 at milepost (MP) 22.85 along Stream KL 14. The Project avoids impacts to this wetland; however, a portion of its buffer will be filled due to construction of the retaining wall. The Project will also temporarily affect a small portion of the wetland buffer during construction.

4.2. Wetland 23.42R

Wetland 23.42R is located east of I-405 at MP 23.42 and west of Woodcrest Drive NE. It consists of emergent and scrub-shrub vegetation communities and is classified as a slope wetland. This wetland and its buffers will be partially filled because of the widening of northbound I-405 and construction of a new I-405 off-ramp to eastbound SR 522. The Project will also temporarily affect a small portion of the wetland and its buffers during construction.

4.3. Wetland 23.46R

Wetland 23.46R is located north of Woodcrest Drive NE, west of Brickyard Road NE, east of I-405 at MP 23.46, and south of 120th Avenue NE. It is dominated by scrub-shrub vegetation and is classified as a slope wetland. This wetland will be mostly filled because of the widening of northbound I-405 and construction of a new I-405 off-ramp to eastbound SR 522. Construction of retaining walls will permanently fill the majority of this wetland, and it was determined that the remaining portion of the wetland no longer provides the same level of wetland function.

4.4. Wetland 23.50R

Wetland 23.50R is located just north of Wetland 23.46R. Wetland 23.50R is a slope wetland and is dominated by a scrub-shrub vegetation community. A small fraction of this wetland and its buffer will be temporarily impacted during construction of the new I-405 off-ramp to eastbound SR 522. Construction of retaining walls will also fill a portion of the wetland buffer.

4.5. Wetland 10.69R

Wetland 10.69R is a depressional wetland located just south of SR 522 and north of Woodinville Drive. The Project avoids impacts to Wetland 10.69R; however, a small portion of the wetland buffer will be temporarily affected during the installation of a traffic signal control cabinet or associated utilities.

4.6. Wetland 10.90R

Wetland 10.90R is located south of SR 522 at MP 10.90 and north of the Sammamish River Trail. It is a slope wetland that is dominated by emergent vegetation. A small portion of Wetland 10.90R and its buffer will be filled due to the widening of eastbound SR 522 and reconfiguration of the I-405 southbound off-ramp to eastbound SR 522. In addition, the Project will also temporarily impact a small fraction of the wetland and its buffer during construction.

4.7. Wetland 11.15R

Wetland 11.15R is located south of SR 522 at MP 11.15 and west of the northbound I-405 off-ramp to eastbound SR 522. This wetland is a depressional wetland that consists of emergent and forested

vegetation communities. Wetland 11.15R will be mostly filled due to the widening of eastbound SR 522 and construction of a new off-ramp from northbound I-405 and new stormwater treatment facilities. A small portion of the wetland will not be filled; however, it is considered indirectly impacted as the remaining portion will not likely provide the same level of wetland function.

4.8. Wetland 23.65L

Wetland 23.65L is a depressional wetland located west of I-405 southbound off-ramp to SR 522 eastbound. It is a former wetland mitigation site constructed in 1996. The Project avoids impacts to this wetland; however a small fraction of its buffer will be filled due to reconfiguration of the I-405 southbound off-ramp to eastbound SR 522. The Project will also temporarily affect a small portion of the wetland buffer during construction.

4.9. Wetland 23.80L

Wetland 23.80L is located at the northwest corner of the I-405/SR 522 interchange. It is a depressional wetland with emergent and scrub-shrub vegetation communities. This wetland will be completely filled because a new bus station, associated bus turnaround loop, pick-up and drop-off facilities, and a new stormwater treatment facility are proposed to be constructed at this location.

4.10. Wetland 23.80R

Wetland 23.80R is located at the northeast corner of the I-405 and SR 522 interchange. It is a depressional wetland with emergent and scrub-shrub vegetation communities. Similar to Wetland 23.80L, this wetland will be mostly filled because of the new northbound I-405 bridge, which will require retaining walls, and a new stormwater treatment facility. A small fragment of the wetland will not be filled; however, the remaining wetland area is unlikely to provide the same level of wetland function.

4.11. Wetland 24.00L

Wetland 24.00L is located west of I-405 at MP 24.00 between I-405 and the berm along the University of Washington Bothell/Cascadia College wetland mitigation site. It is a depressional wetland dominated by emergent vegetation. This wetland and its buffer will be partially filled because of the widening of southbound I-405 and the associated embankment. These improvements will permanently impact the northern portion of the wetland, and a fraction of this wetland and its buffer will be temporarily affected during construction.

4.12. Wetland 24.20R

Wetland 24.20R is a depressional wetland located east of I-405 between MP 23.95 and 24.27. The Project will not have permanent impacts on Wetland 24.20R; however, a small portion of this wetland and its buffer will be temporarily affected during construction of a new retaining wall.

4.13. Wetland 24.35R

Wetland 24.35R is a depressional wetland located east of I-405 at MP 24.35 and north of North Creek. The Project avoids impacts to this wetland; however, a small portion of the buffer will be permanently affected due to construction of a stormwater treatment facility.

4.14. Wetland 25.03R

Wetland 25.03R is located east of I-405 between MP 25.0 and MP 25.1, immediately west of North Creek. It is a depressional wetland that consists of aquatic, emergent, and scrub-shrub vegetation communities. A small portion of this wetland and its buffer will be excavated for construction of a new channel segment of Stream 25.0L to Wetland 25.03R. As a result, a small portion of Wetland 25.03R will be converted to a stream channel.

Additionally, the Project will have approximately 0.756 acre of indirect impacts to Wetland 25.03R as a result of the relocation of Stream 25.0L. Wetland 25.03R currently remains inundated with up to 3 feet of surface water for significant portions of the year. The wetland also fills up with overbank flow from North Creek during high flows and only draws down during late spring through the summer. Once the stream is relocated, Stream 25.0L will consistently discharge approximately 3 to 5 cubic feet per second of surface flow into the wetland throughout the year. The increased inflow will raise the elevation of the ponded portion of the wetland, extend the period of inundation, and potentially convert the emergent/scrub-shrub community along the margin of the wetland to an emergent/aquatic bed community. It is expected that the emergent/scrub-shrub community will re-establish along the new margin of the wetland over time.

4.15. Wetland 25.08L

Wetland 25.08L is located west of I-405 at MP 25.08 at Stream 25.0L. It is a slope wetland that consists of emergent and scrub-shrub vegetation communities. Some portions of the wetland will be filled because of the widening of southbound I-405 and installation of a media filter drain that will run parallel to the widened roadway. Other portions will be excavated for construction of a new channel associated with the fish barrier correction at Stream 25.0L. A small portion of the wetland will not be filled; however, it is considered indirectly impacted because the remaining portion will not likely provide the same level of wetland function.

4.16. Wetland 25.22L

Wetland 25.22L is located west of I-405 at MP 25.22. It is a depressional wetland that consists of emergent, scrub-shrub, and forested vegetation communities. This wetland will be mostly filled because of the widening of southbound I-405 and the associated embankment. These improvements will permanently impact approximately three-quarters of this wetland. A small portion of the wetland will not be filled; however, it is considered indirectly impacted as the remaining portion will not likely provide the same level of wetland function.

4.17. Wetland 25.34L

Wetland 25.34L is a slope wetland located west of I-405 at MP 25.34, adjacent to Stream 66. The Project avoids impacts to this wetland; however, a portion of the wetland buffer will be filled because of the widening of southbound I-405. The Project will also temporarily affect a small portion of the wetland buffer during construction.

4.18. Wetland 25.66L

Wetland 25.66L is located adjacent to I-405 southbound at MP 25.66. It is a slope wetland with emergent and scrub-shrub vegetation communities. Due to its close proximity to the existing southbound I-405 lane, this wetland will be completely filled because of the widening of southbound I-405.

4.19. Wetland 26.10L

Wetland 26.10L is located adjacent to I-405 southbound at MP 26.10. It is a slope wetland with emergent and scrub-shrub vegetation communities. This wetland and its buffer will be partially filled because of the widening of southbound I-405. In addition, the Project will temporarily affect some portions of the wetland and the wetland buffer during construction of the roadway widening.

4.20. Wetland 26.13R

Wetland 26.13R is located east of I-405 at MP 26.13, south of 228th Street SE. It is a depressional wetland with forested and scrub-shrub vegetation communities. A small portion of this wetland and its buffer will be partially filled because of the roadway widening of northbound I-405. In addition, the Project will temporarily affect a fraction of this wetland and the wetland buffer during construction of the roadway widening.

4.21. Wetland 26.15L

Wetland 26.15L is located west of I-405 at MP 26.15, north of the 21st Avenue SE cul de sac. It is a depressional wetland with forested and scrub-shrub vegetation communities. This wetland and its buffer will be partially filled because of the roadway widening of southbound I-405. The Project will also temporarily affect a small portion of the wetland and the wetland buffer during construction.

4.22. Wetland 26.35R

Wetland 26.35R is located east of I-405 at MP 26.35 along North Fork and South Fork Perry Creek. It is a depressional wetland and consists of scrub-shrub and forested vegetation communities. This wetland will be partially excavated and filled because of construction of a restored stream connection and the associated grading east of northbound I-405. Some buffers will be filled as a result of roadway widening of northbound I-405 and construction of a stormwater treatment facility. These improvements will also temporarily affect a small portion of the wetland and its buffer. The Project will realign North Fork Perry Creek upstream and downstream of the I-405 crossing. As a result, a small portion of Wetland 26.35R will be converted to a stream channel.

4.23. Wetland 26.50R

Wetland 26.50R is located east of I-405 at MP 26.50R, south of the Canyon Park Park and Ride. It is a depressional wetland that consists of a forested vegetation community. This wetland will be completely filled due to construction of a stormwater treatment facility and the associated grading.

4.24. Wetland 26.55L

Wetland 26.55L is located west of I-405 at MP 26.55, north of North Fork Perry Creek. It is a depressional wetland and consists of forested and emergent vegetation communities. This wetland and its buffer will be partially excavated and filled because of construction of a restored stream connection and the associated grading west of southbound I-405. These improvements will also temporarily affect a small portion of the wetland during construction. The impacted portion of the wetland is dominated by forested vegetation. In addition, a small portion of Wetland 26.55L will be converted to a stream channel as the Project realigns North Fork Perry Creek.

4.25. Wetland 26.70R

Wetland 26.70R is located east of the northbound I-405 off-ramp to eastbound SR 527 along Queensborough Creek. It is a depressional wetland with a forested vegetation community. This wetland and its buffer will be partially filled because of construction of a restored stream connection and associated grading activities at the north end of the wetland and an expansion of the Canyon Park Park and Ride at the south end of the wetland. These improvements will also temporarily affect a small portion of the wetland and the wetland buffer during construction. As part of the realignment of Queensborough Creek, a small portion of this wetland will be converted to a stream channel.

4.26. Wetlands 26.77R, 26.78R, and 26.79R

Wetlands 26.77R, 26.78R, and 26.79R are located along Queensborough Creek just upstream of the SR 527 culvert crossing. All of the wetlands are slope wetlands consisting of scrub-shrub vegetation communities. Portions of Wetlands 26.77R, 26.78R, 26.79R, and their buffers will be excavated or filled because of construction of a restored stream connection and the associated grading north of SR 527. Additionally, the Project will temporarily impact a small fraction of Wetlands 26.77R and 26.78R and their buffers during construction. As part of the realignment of Queensborough Creek, a small portion of these wetlands will be converted to a stream channel.

4.27. Impacted Wetland Functions

Impacted wetlands for the Project are categorized as either depressional or slope wetlands. Depressional wetlands are more effective at trapping sediments and holding back incoming surface water than slope wetlands. Slope wetlands typically do not provide storage and are not effective at sediment removal as they do not impound surface water (Sheldon et al. 2005). However, slope wetlands with dense groundcover with hummocks were documented to provide sediment retention (Sheldon et al. 2005).

Twelve wetlands that are permanently affected by the Project are depressional wetlands. Most of these wetlands provide moderate water quality functions to trap sediments and prevent releasing particulates further downstream.

The other nine permanently impacted wetlands are slope wetlands, which provide low to moderate potential for water quality. Wetlands with gentle slopes and dense, uncut, herbaceous plants provide higher potential for water quality functions.

Depressional wetlands that are impacted by the Project have some storage capacity, providing moderate to high hydrologic functions. On the other hand, most of the impacted slope wetlands have low potential to provide hydrologic functions, as most of the wetlands lack dense, rigid plant coverage.

Impacted wetlands have low to moderate potential to provide habitat for wildlife due to their close proximity to I-405 or surrounding development. Most of the wetlands have low species diversity, limited vegetation communities, and low interspersions of habitat types.

The Project will entirely eliminate eight wetlands (11.15R, 23.46R, 23.80L, 23.80R, 25.08L, 25.22L, 25.66L, and 26.50R). Most of these wetlands are impacted due to the roadway improvements including roadway fill and construction of retaining walls and stormwater facilities, except for 25.08L. Portions of Wetland 25.08L will be graded as part of roadway improvement activities and some portions will be graded to create a new channel associated with the fish barrier correction at Stream 25.0L. As a result, the function described above for these wetlands will be entirely lost.

Approximately 10 to 80 percent of eight wetlands will be filled due to roadway widening and/or fish barrier correction. Of these eight wetlands, impacts to three wetlands (10.90R, 23.42R, 26.10L) will result from roadway improvement activities only, and impacts to four wetlands (26.55L, 26.77R, 26.78R, and 26.79R) will result from fish barrier correction only. Impacts to one wetland (26.70R) will result from a combination of roadway improvements and fish barrier correction activities. Water quality and hydrologic functions including volume, rate, and duration are not expected to change in the remaining portions of the wetlands as groundwater discharges upslope of the impacted areas. The remaining portions of the wetlands will have forested, scrub-shrub, and emergent vegetation.

Permanent impacts to the other four impacted wetlands (24.00L, 25.03R, 26.13R, and 26.35R) will also occur as a result of roadway widening and fish barrier corrections; however, these impacts are significantly small (less than 1 percent of total size of the wetland) compared to the overall size of these wetlands. Therefore, water quality and hydraulic functions of the remaining portions of the wetlands are not anticipated to change.

The Project will also convert wetlands and wetland buffers that are located adjacent to the restored stream connections because these areas will be graded into new channels to provide fish habitat. The Project addresses barriers to fish movement at Par Creek, Stream 25.0L, North Fork Perry Creek, and Queensborough Creek, which will result in improved stream connections at all of these crossings. Widening the hydraulic openings and improving connectivity will improve sediment transport, nutrient transport, and passage of fish and aquatic wildlife upstream and downstream of each crossing. Overall, restoring stream connections at the five crossings is expected to provide a net gain of aquatic resources after construction, improving access for fish and aquatic species to upstream habitat in Par Creek, Stream 25.0L, North Fork Perry Creek, and Queensborough Creek.

Chapter 5. Stream and Stream Buffer Impacts

The Project will have permanent and temporary impacts to several streams and associated buffers. Stream impacts at Par Creek, Stream 25.0L, North Fork Perry Creek, and Queensborough Creek are associated with fish barrier corrections to comply with the federal permanent injunction (*United States, et al. vs. Washington, et al.*, No C70-9213 Subproceeding No. 01-1 dated March 29, 2013). Correcting existing fish barriers by restoring stream connections and realigning the stream channel will provide additional access to upstream habitat for fish and aquatic species.

For assessing stream impacts, any construction activities that result in altering channel substrates are considered permanent stream impacts. Temporary stream impacts occur at the Sammamish River and unnamed tributary (UNT) to Par Creek, where temporary disturbance to the stream channel is anticipated. Table 4 provides a summary of these impact quantities. Impacts to streams within the Project area are described in this chapter. Stream impact areas and buffer impact areas are shown in Attachment A. A summary of conditions in each directly impacted stream is provided in Attachment C.

Table 4. Summary of Stream and Stream Buffer Impacts

Stream	Stream Impact (acre)		Buffer Impact (acre)	
	Permanent	Temporary	Permanent	Temporary
Sammamish River	0	0.079	0.054	2.380
Par Creek	0.037	0	0	0.093
UNT to Par Creek	0	0.049	0.201	0.069
Stream 25.0L	0.052	0	0	0.260
North Fork Perry Creek	0.085	0	0	0.006
Queensborough Creek	0.190	0	0.110	0.340
TOTALS	0.365	0.128	0.365	3.148

UNT = unnamed tributary

5.1. Sammamish River

At the I-405/SR 522 interchange, the Project will demolish two existing bridges for the northbound I-405 ramps to SR 522, both with spans over the Sammamish River. Once the demolition of the bridge superstructure is complete, the Project will demolish the piers to 2 feet below mudline/natural stream bottom. Each of the existing bridges includes two piers within the Sammamish River.

Demolition of the piers within the Sammamish River will require each column to be isolated with a cofferdam during the approved in-water work window and will be removed to 2 feet below the mudline. Table 4 lists the temporary impact area in the Sammamish River during the pier removal activities. In-stream isolation could result in an immediate and direct loss of benthic habitat from the dewatered construction zone. However, substrates at the pier removal work and bridge demolition in the Sammamish River are mostly silt and clay and exhibit limited benthic habitat.

5.2. Par Creek

The Project will remove the existing fish barrier at Par Creek. As a result, some portions of the stream channel will be altered by the proposed work for removing the existing fish barrier. However, the impacted portion of the channel will be restored after the construction of a restored stream connection is complete. Benthic habitat is limited at Par Creek as substrates are primarily fine sediments. Additionally, affected benthic habitat at Par Creek is expected to recover relatively quickly by recolonization and recruitment from nearby undisturbed areas; therefore, displacement of benthic habitat from dewatering is expected to be limited in severity, extent, and duration.

5.3. Unnamed Tributary to Par Creek

Some temporary stream channel impacts are anticipated to occur from construction equipment and entry and exits of construction personnel during installation of the retaining wall located adjacent to UNT to Par Creek. Additionally, the Project will temporarily affect a portion of UNT to Par Creek while removing the existing fish barrier at Par Creek. Similar to Par Creek, the impacted portion of the UNT to Par Creek channel will be restored after the Project restores a stream connection at Par Creek. Affected benthic habitat is expected to recover relatively quickly as discussed in Section 5.2. Any activities within the stream channel will be completed during the approved in-water work window.

5.4. Stream 25.0L

The Project will replace the existing fish barrier at Stream 25.0L with a restored stream connection and complete the stream connection between Stream 25.0L and nearby North Creek. This approach would create a greater length of open channel and provide access to Wetland 25.03R, located about 300 feet east of the current Stream 25.0L alignment, that connects with North Creek and would provide key side channel habitat needed for coho rearing. Stream 25.0L will be permanently impacted by the proposed work for removing the existing fish barrier and then restored at the east and west end of I-405 to accommodate the construction of a restored stream connection. Restoration will include planting of native vegetation along the newly created stream channel will provide additional habitat benefits. Affected benthic habitat at the restored stream connection is expected to recover relatively quickly as discussed in Section 5.2.

5.5. North Fork Perry Creek

The Project will replace the existing fish barrier at North Fork Perry Creek. A portion of the channel at both ends of the culvert will be permanently altered by the proposed work for removing the existing fish barrier, but it will be restored after the construction of a restored stream connection is complete. Displacement of benthic habitat at the impacted portion of the stream channel is likely limited due to the reasons described in Section 5.2.

5.6. Queensborough Creek

The Project will replace two fish barriers at Queensborough Creek. A portion of the channel at both ends of the culvert will be permanently altered by the proposed work for removing existing fish barriers. However, these impact areas will be restored at the north and south ends of SR 527 and also at the east and west ends of I-405 to accommodate the construction of a restored stream connection. Displacement of benthic habitat at the impacted portion of the stream channel is likely limited due to the reasons described in Section 5.2.

Chapter 6. Mitigation

6.1. Summary of Mitigation Requirements

6.1.1. Wetland Requirements

As identified in the Governor’s Executive Order 89-10 (Protection of Wetlands: “No Net Loss”) and WSDOT Policy P2038 (Wetlands Protection and Preservation), WSDOT is required to ensure no net loss of wetlands acreage and function is caused by department actions, and to increase the quantity and quality of wetlands in the long term. In addition to meeting the “no net loss” agency policy, the total area of mitigation proposed is generally based on the guidelines established in Washington Department of Ecology (Ecology) guidelines (Ecology et al. 2006a, 2006b) and the City of Bothell’s Critical Areas Ordinance (Bothell Municipal Code [BMC] 14.04).

Short-term temporary wetland impacts associated with vegetation disturbance or removal for construction access or temporary fill are required to be restored to pre-impact conditions by establishing native wetland vegetation. Long-term temporary impacts to wetlands are also required to be restored to pre-impact conditions; however, *Wetland Mitigation in Washington State*, a joint guidance document produced by Ecology in partnership with WSDOT and other resource agencies, recommends that they also be mitigated as permanent impacts at one-fourth of the established ratio (Ecology et al. 2006a).

6.1.2. Bothell Wetland, Stream, and Buffer Requirements

The City of Bothell requires mitigation of permanent wetland impacts at specific ratios based on the impacted wetland category unless the impact occurs within the service area of an established mitigation bank (BMC 14.04). The Project will impact Category II, III, and IV wetlands and proposes to mitigate permanent wetland impacts within Bothell’s jurisdiction at the Happy Valley Mitigation Site and the Keller Farm Mitigation Bank (Bank), as discussed further in Section 6.2.

The City of Bothell specifies that wetland and stream buffers be mitigated at a minimum 1:1 ratio and includes enhancement of degraded critical areas by planting native species and/or other measures. The Project proposes to mitigate permanent wetland buffer impacts through on-site restoration at the Par Creek sites.

6.1.3. Additional Stream Mitigation Requirements

Ecology and Washington Department of Fish and Wildlife (WDFW) (RCW 90-74-005 through 90-74-020) require stream mitigation which provides equal or better biological functions and values, compared to the existing conditions. WSDOT will ensure the Project’s stream mitigation elements are constructed and maintained in accordance with WDFW’s Integrated Streambank Protection Guidelines to address the potential mechanisms of streambank failure, or other degradation of mitigation areas (WDFW 2003).

6.2. Wetland Mitigation Site Selection Rationale

To mitigate for permanent wetland impacts, WSDOT considered mitigation options including (a) purchase of mitigation bank credits, (b) in-lieu fee payment programs, and (c) permittee-responsible mitigation. WSDOT is proposing to provide wetland mitigation with two options; by purchasing credits from the Bank and through credits generated at the WSDOT Happy Valley Mitigation Site. The Bank is

in Redmond, Washington, at the confluence of Bear, Evans, and Perrigo Creeks (Figures 2 and 3). The WSDOT Happy Valley Mitigation Site is a permittee-responsible advanced mitigation site in Redmond along Evans Creek (Figures 2 and 4). The following sections describe the rationale for the selected mitigation approach and proposed use of mitigation credits.

6.2.1. Mitigation Bank Site Selection Rationale

The purchase of credits at the Bank will provide in-kind, in-watershed mitigation for 3.891 acres of the Project's permanent wetland impacts, 0.037 acre of the Project's long-term temporary impacts, and associated wetland buffer impacts. Both the Project and the Bank occur within Water Resource Inventory Area (WRIA) 8. The Project is located within the Bank's primary service area, which includes all portions of WRIA up to an elevation of 2,500 feet, down to the Ballard Locks at the Lake Washington Ship Canal. The Bank provides appropriate mitigation for the project's impacts for the following reasons:

- Both the Project impacts and the Bank occur within WRIA 8.
- The Project is located within the Bank's primary service area.
- Mitigation at the Bank will result in no-net-loss of functions within WRIA 8.
- Purchase of credits from the Bank is consistent with the mitigation hierarchy established in the 2008 Final Rule on Compensatory Mitigation for Losses of Aquatic resources (Rule).

The Rule creates a preference for the use of mitigation bank credits to compensate for permitted impacts to aquatic resources. The Rule states "when the permitted impacts are located within the service area of an approved mitigation bank, and the bank has the appropriate number and resource type of credits available, the permittee's compensatory mitigation requirements may be met by securing those credits from the sponsor" (33 Code of Federal Regulations [CFR] Part 332.3b(2)). As stated previously in this report, the Project is within the Bank's service area and the Bank has an adequate amount of credits available for purchase. For these reasons, the purchase of credits at the Bank is appropriate compensatory mitigation for the Project's permanent impacts to wetlands.

The Final Rule for Compensatory Mitigation for Losses of Aquatic Resources (33 CFR Parts 325 and 332) indicates that use of mitigation bank credits helps to reduce the risk, uncertainty, and temporal loss of resource functions. Banks are also required to undergo more rigorous scientific analysis and a more comprehensive planning and implementation than permittee-responsible on-site mitigation. Furthermore, bank credits are not released until specific milestones related to protection and development of the bank have been achieved, reducing the risk for failure of the mitigation. For these reasons, the Final Rule indicates a preference for mitigation bank credits where these considerations are applicable.

As noted above, the permanent impacts to wetlands described in Section 4 are located within the service area for the Bank. The Bank site is located in WRIA 8 in the lower portion of the Bear Creek Basin, approximately 2.1 miles above Bear Creek's confluence with the Sammamish River. The entire 75.2 acres of the Bank site is located within the Bear Creek floodplain and has been actively used for agriculture, predominately dairy farming, for the last 120 years.

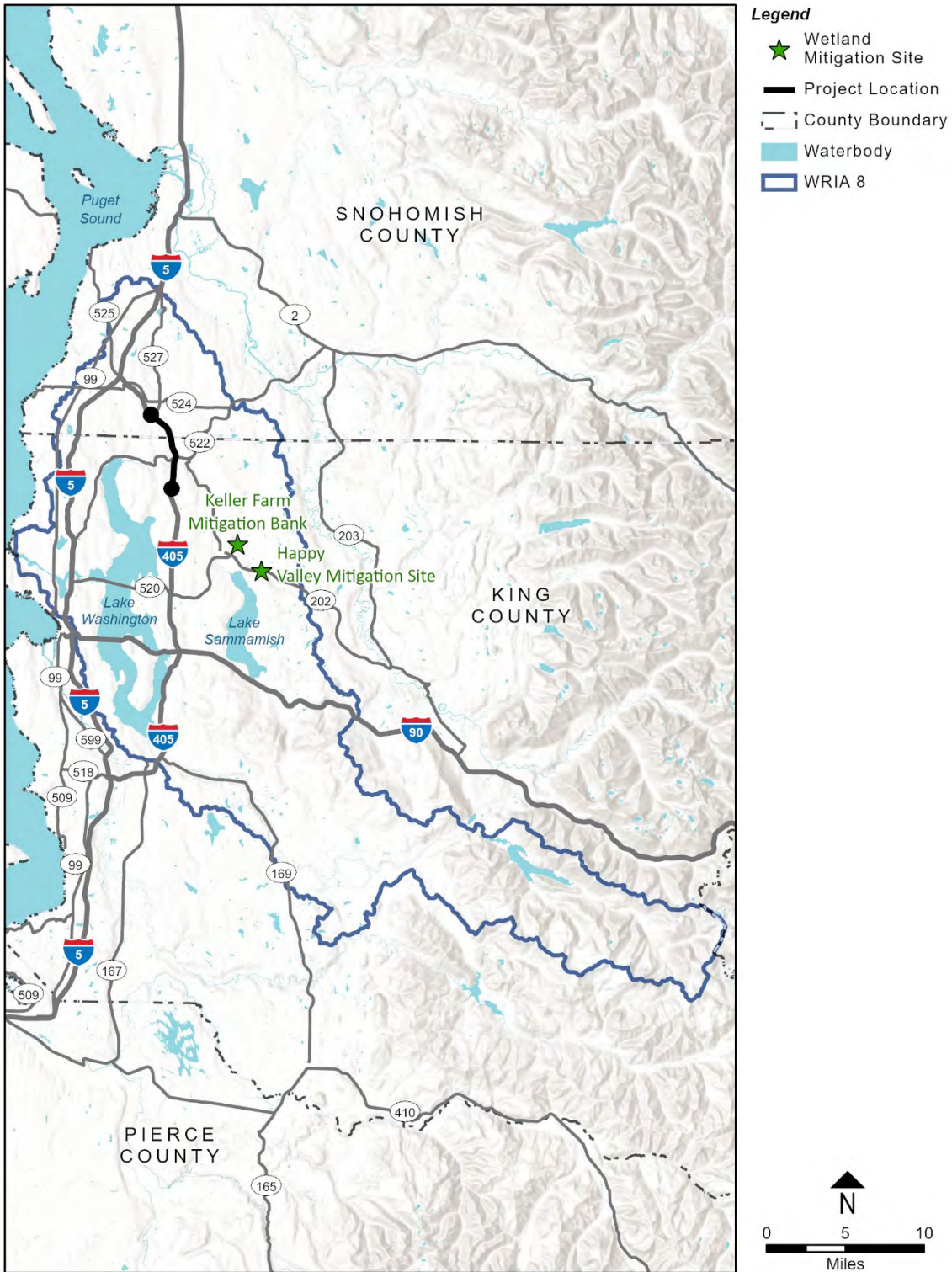


Figure 2. Proposed Mitigation Locations

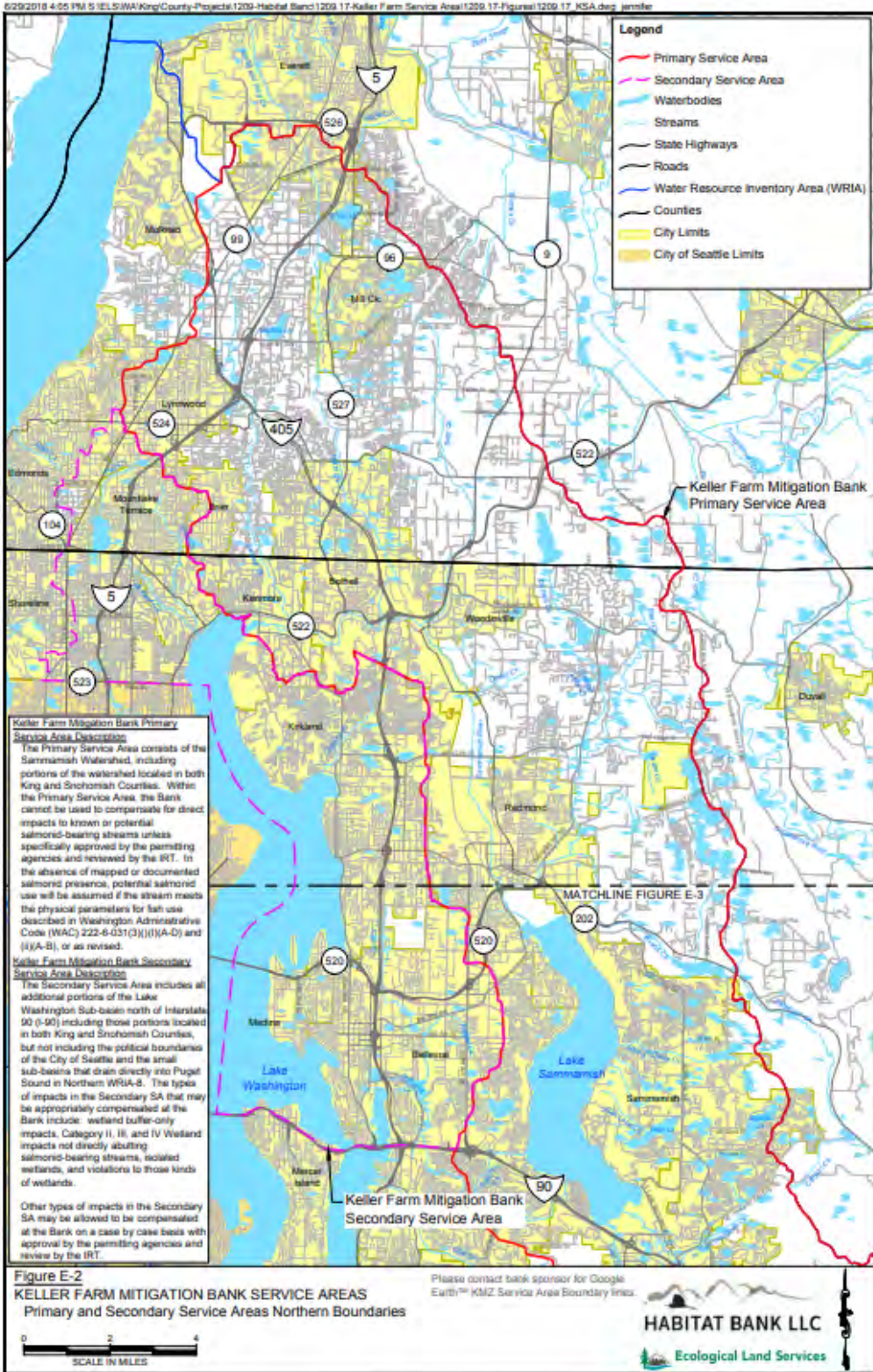


Figure 3. Keller Farm Mitigation Bank Service Area

Approximately 7.9 acres of heavily disturbed wetland area currently exist on the Bank site. The property was cleared by the Kellers, the original homesteading family, who operated a dairy farm until the 1990s and then rented portions of the property to other farmers for row-crop production. The drainage system includes a series of deep, channelized farm ditches that effectively convey surface water and shallow groundwater off the property to dry out fertile soils in the floodplain. Bear Creek forms the majority of the southern and eastern boundary of the Bank site. The Bank site is located at the confluence of three different creeks: Bear, Evans, and Perrigo Creeks, and the site itself includes an additional 5,400 linear feet of ditches (classified as stream channels) within the Bank property.

Restoration actions will add an additional 2,800 feet of stream channel habitat, resulting in a total of 8,200 linear feet of restored stream channel habitat on site, which will have a direct and year-round connection to Bear Creek. The stream channel and associated aquatic habitat areas will be accessible for resident and anadromous fish species.

The Bank site's design includes the following goals to restore critical habitat and aquatic functions to the site:

- Permanently protect ecosystem functions at the Bank by implementing the Instrument and executing a conservation easement with permanent funding for site stewardship.
- Re-establish wetland hydrology and varying wetland hydroperiods across the site by disabling farm ditches to create additional wetland area and function.
- Re-establish wetland vegetation and wetland habitat communities across the site. Remove noxious and invasive plant species and reintroduce native vegetation to increase habitat complexity in the floodplain wetlands and adjacent upland areas. Plant native trees, shrubs, and herbaceous species to re-establish a mosaic of habitat communities within the Bank property.
- Reconnect Bear Creek to the floodplain to attenuate flood flows, reduce peak flood flows, create floodplain connections to improve food and organic material transport, and provide access for aquatic organisms to floodplain wetlands and aquatic areas.
- Create a daylighted connection point for Perrigo Creek on the Bank site and create a wetland-channel complex through which Perrigo Creek can flow to Bear Creek, contributing to restored wetland hydrology on site, when Perrigo Creek is routed to the site.
- Re-establish stream channel complexity within the floodplain streams areas as well as the mainstems of Bear and Perrigo Creeks. Channel complexity and increased connectivity will be accomplished through grading and adding large woody debris material structures at the floodplain stream channel connections and along the floodplain streams to create pools and channel complexity.
- Establish suitable off-channel rearing and refuge habitat for salmonids within the newly created floodplain streams, alcoves and deeper emergent wetland areas on site.
- Improve shading and cover of streams and aquatic areas to improve temperature conditions in Bear Creek and within the floodplain stream channel complex.
- Increase habitat structure and diversity for other aquatic dependent fish and wildlife, improve food chain support with the production of organic materials and creation of habitat types that support wetland dependent organisms.

Additional information on the Bank is available in the *Keller Farm Wetland Mitigation Bank Instrument* (Woodward 2018). Wetland mitigation needs of the Project include providing wildlife habitat support, as well as capacity to store, slow, and filter surface runoff. The goals and objectives of the Keller Farm Mitigation Bank are to improve water quality, water quantity, and habitat functions in degraded freshwater wetlands, which corresponds to the wetland mitigation needs of the Project. The Bank will also create or re-establish wetlands in the same watershed where the impacted wetlands are present.

6.2.2. In-Lieu Fee Programs and Advance Wetland Mitigation Banks

King County's Mitigation Reserves Program (MRP) has an In-Lieu Fee (ILF) program with seven service areas. The MRP program allows the purchase of mitigation credits and then uses the collected fees to implement mitigation projects in the appropriate service areas. Some of the Project impacts fall into the Sammamish River service area; but any impacts outside of King County are located in Snohomish County and are therefore outside of the service area. At this time, Snohomish County does not have an In-Lieu Fee program. Because the Project is located within the service area of the Keller Farm Mitigation Bank, the expected functions provided from purchasing credits at the Bank best meet the mitigation needs of the Project.

6.2.3. Permittee-Responsible Mitigation

WSDOT also considered permittee-responsible mitigation as one of the mitigation options. Using excess credits from the Happy Valley Mitigation Site will provide in-kind, in-watershed mitigation for 0.937 acre of the Project's permanent wetland impacts and 0.13 acre of the Project's long-term temporary wetland impacts. Both the Project impacts and the mitigation site occur within WRIA 8.

The Happy Valley Mitigation Site was created in 2005 to compensate for the SR 202 Improvement Project: SR 520 to Sahalee Way NE. The mitigation site provided more mitigation area than was required for the SR 202 Improvement Project and was intended to be used as advanced mitigation for wetland impacts from future WSDOT projects located within WRIA 8 (Entranco 2005). The mitigation site is in WRIA 8 in the Evans Creek Basin, approximately 1.5 miles east of Lake Sammamish (Figure 4). The entire 16.7 acres of the site lie within the Evans Creek floodplain and was formerly used for agriculture and logging. The mitigation site contains approximately 5.43 acres of created wetland along the bank of Evans Creek, approximately 1.72 acres of enhanced scrub-shrub wetland in the northwest corner of the site, and approximately 5.76 acres of enhanced upland buffer along the property edges. The mitigation site has been through 10 years of monitoring and maintenance and has met all of its prescribed performance standards. It is a site that is likely to be successful and sustainable in offsetting the impacts incurred by the Project.

The mitigation site's design includes the following goals to restore critical habitat and aquatic functions to the site:

- Permanently protect ecosystem functions at the mitigation site by executing a conservation easement with permanent funding for site stewardship.
- Reestablish wetland hydrology and varying wetland hydroperiods across the site by excavating and grading to maximize flood storage to comply with the Federal Emergency Management Agency zero-rise ordinance and by incorporating the unnamed tributary to Evans Creek into the created wetland.

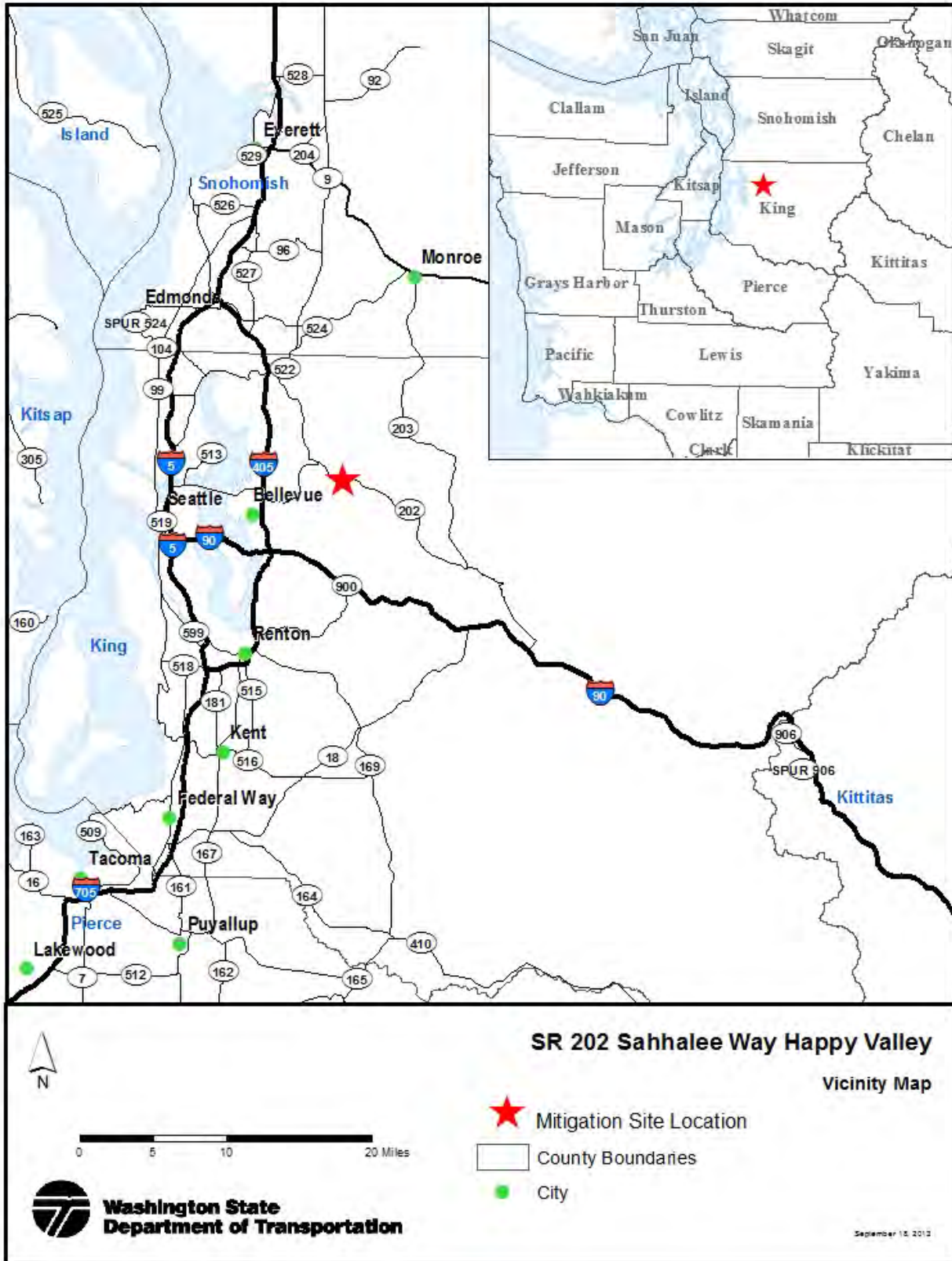


Figure 4. Happy Valley Mitigation Site Location

- Reestablish wetland vegetation and wetland habitat communities across the site. Remove noxious and invasive plant species and reintroduce native vegetation to increase habitat complexity in the floodplain wetlands and adjacent upland areas. Plant native trees, shrubs, and herbaceous species to reestablish a mosaic of habitat communities within the property.
- Create a riverine wetland with a self-sustaining wetland plant community.
- Reestablish stream channel complexity within the floodplain. Channel complexity and increased connectivity was accomplished through grading and adding large woody debris material structures at the floodplain stream channel connections and along the floodplain streams to create pools and channel complexity.
- Improve shading and cover of streams and aquatic areas to improve temperature conditions in Evans Creek and within the floodplain stream channel complex.
- Increase habitat structure and diversity for other aquatic-dependent fish and wildlife.
- Improve food chain support with the production of organic materials and creation of habitat types that support wetland-dependent organisms.

Additional information on the mitigation site is available in the *SR 202, SR 520 to Sahalee Way Improvement Project Wetland and Stream Mitigation Plan* (Entranco Inc. 2005). Wetland mitigation needs of the Project include providing wildlife habitat support, as well as capacity to store, slow, and filter surface runoff. The goals and objectives of the Happy Valley Mitigation Site are to improve water quality, water quantity, and habitat functions in degraded freshwater wetlands, which corresponds to the wetland mitigation needs of the Project. The mitigation site also contains created and enhanced wetlands in the same watershed where the impacted wetlands are present.

6.3. Proposed Mitigation

WSDOT proposes to mitigate permanent wetland impacts and long-term temporary wetland impacts through the purchase of Bank credits and credits generated at the WSDOT Happy Valley Mitigation Site. Temporary wetland buffer impacts, and stream buffer impacts will be restored on-site at the impact locations. Permanent stream impacts associated with fish barrier corrections will be restored after the fish barriers are corrected. To comply with the City of Bothell buffer mitigation requirements, the remaining impacts, including permanent wetland buffer impacts and permanent stream buffer impacts, will be restored on site at Par Creek, located east of the westbound SR 522 to northbound I-405 on-ramp.

The Project will have approximately 0.756 acre of indirect impact as a result of the proposed relocation of Stream 25.0L. However, relocation of Stream 25.0L is expected to provide a net gain of aquatic resources over the long term by improving access for fish and aquatic species in Stream 25.0L and connectivity between Stream 25.0L and North Creek. The increased ponded portion of the wetland will continue to support the water quality, hydrologic, and habitat functions that it currently provides. As the ponded area expands along the margin, additional habitat will become available to support fish and wildlife, providing an added benefit. An emergent/scrub-shrub community is expected to develop along the new margin of the ponded area to provide the functions that will be temporarily displaced when the current emergent/scrub-shrub area is inundated. In the long-term, transition of the vegetation community would not alter any of the wetland functions.

Additionally, the Project will convert approximately 0.035 acre of seven wetlands into stream channels as a result of proposed fish barrier correction work. Widening the hydraulic openings will improve sediment

transport, nutrient transport, and passage of fish and aquatic wildlife upstream and downstream of I-405. Connectivity for Par Creek, Stream 25.0L, North Fork Perry Creek, and Queensborough Creek will be improved between upstream and downstream habitat. Aquatic species will have access to an additional 24,330 linear feet of upstream habitat after fish barriers are replaced with restored stream connections at Par Creek, Stream 25.0L, North Fork Perry Creek, and Queensborough Creek. Overall, correcting existing fish barriers will provide a functional lift for aquatic resources and associated wetlands. As a result, no mitigation is proposed for the anticipated indirect impact and wetland to stream conversion areas.

Table 5 summarizes the proposed mitigation at each site for different impact types. The following sections describe the proposed mitigation credits at the Keller Farm Mitigation Bank and conceptual on-site restoration mitigation activities.

Table 5. Summary of Proposed Mitigation

	Impact Area (acre)	Happy Valley Mitigation Site (acre)	Keller Farm Mitigation Bank (acre)	On-site Restoration at Impact Locations (acre)	On-site Mitigation at Par Creek (acre)
Wetlands					
Permanent Impact	5.003	0.937	3.891	0.175	0
Indirect Impact	0.756	NA	NA	NA	NA
Wetland to Stream Conversion	0.035	NA	NA	0.035	NA
Long-term Temporary Impact	0.173	0.130	0.037	0.006	0
Permanent Buffer Impact	2.048	0	0	0	2.048
Temporary Buffer Impact	0.763	0	0	0.763	0
Streams					
Stream Permanent Impact	0.366	0	0	0.366	0
Stream Temporary Impact	0.128	0	0	0.128	0
Stream Permanent Buffer Impact	0.365	0	0	0	0.365
Stream Temporary Buffer Impact	3.148	0	0	3.148	0

6.3.1. Happy Valley Mitigation Site

WSDOT proposes to mitigate Category II and Category IV wetland impacts by using excess credits at the WSDOT-owned Happy Valley Mitigation Site, which was constructed for a previous WSDOT project and has unused credits available for new WSDOT projects with wetland impacts. The site was designed as forested and scrub-shrub wetlands to compensate for impacts to Category I wetlands, which will provide a functional lift as mitigation for the wetlands impacted by the Project.

A 1:1 mitigation-to-impact ratio will be used to calculate mitigation credits and is appropriate for the advanced mitigation site. Mitigation ratios higher than 1:1 are typically in place to compensate for the

post-impact temporal loss of wetland area and function while wetland mitigation is already constructed and established to account for the potential lack of mitigation success. The use of the advanced mitigation site will eliminate the concern of temporal loss, and the success of the mitigation site has been demonstrated through annual monitoring. A modified ratio is applied for the long-term temporary impacts using the joint guidance (Ecology et al. 2006a). Table 6 summarizes the number of credits required for Project impacts at the Happy Valley Mitigation Site and the Keller Farm Mitigation Bank.

Use of the Happy Valley Mitigation Site is consistent with the City of Bothell's Critical Areas Ordinance. Off-site mitigation is allowed when the following conditions exist:

1. There are no reasonable on-site or in-sub-drainage basin opportunities or on-site and in-sub-drainage basin opportunities do not have a high likelihood of success, after a determination of the natural capacity of the site to mitigate for the adverse impacts.
2. Off-site mitigation has a greater likelihood of providing equal or improved wetland functions than the impacted wetland.

The Project is located in three drainage basins: Juanita Creek, Sammamish River, and North Creek. In general, land uses in all of these basins along the Project mostly consist of medium- and high-density residential developments, commercial, and industrial uses. There are no mitigation opportunities within WSDOT right of way within these basins, and mitigation opportunities outside of WSDOT right of way are limited as areas potentially available are already fragmented and do not have a high likelihood of success. As described above, the success of the Happy Valley Mitigation Site has been already demonstrated to show that the site will provide improved wetland functions than the impacted wetlands.

6.3.2. Keller Farm Mitigation Bank

WSDOT proposes to mitigate Category III wetland impacts through the purchase of bank credits at the bank. Credits are the "currency" of the mitigation bank. The value of each credit is equal to its net ecological benefit. For the Bank, the value of one credit was developed to be equal in value to 1 acre of Category III wetland. Specifically, the Bank credit-impact acreage ratio is 1.0 credit per acre (1:1 ratio) of Category III wetland impacts (Woodward 2018).

For the Project, the number of credits proposed to offset each impact type may deviate from the Bank requirements because of the nature of the impacts. The standard ratio is applied when an impact occurs because of the installation of roadway elements. A modified ratio is applied for impacts occurring as a result of a temporal (as opposed to permanent) loss of wetland functions because of long-term vegetation disturbance. Table 6 summarizes the number of credits that are proposed to be used at the Happy Valley Mitigation Site and purchased at the Bank.

Use of the Bank is a mitigation approach consistent with the City of Bothell Critical Areas Ordinance. There will be no temporal loss of wetland area and function because the mitigation is already constructed, the initial release of credits occurred in summer 2019, and the site is currently meeting performance criteria. Furthermore, the site has created wetlands of higher quality than the degraded roadside wetlands impacted by the Project.

WSDOT is in coordination with the Bank to hold necessary mitigation credits for the Project. WSDOT will purchase mitigation credits after all necessary permits are issued. Once the credit purchase is complete, a proof of purchase will be submitted to U.S. Army Corps of Engineers, Ecology, and the City of Bothell.

Table 6. Summary of Mitigation Bank Credits at the Happy Valley Mitigation Site and the Keller Farm Mitigation Bank

Wetland	Rating	Permanent Impact Ratio	Permanent Impact (acres)	Proposed Mitigation Location	Long term Temporary Impact Ratio	Long Term Temporary Impact (acres)	Credit Required (acre-credit)
26.13R	II	1:1	0.123	Happy Valley Mitigation Site	0.25:1	0.083	0.144
26.70R ^a	II	1:1	0.139	Happy Valley Mitigation Site	0.25:1	0.016	0.143
23.80L	III	1:1	2.212	Keller Farm Mitigation Bank	0.25:1	0	2.212
23.80R	III	1:1	1.328		0.25:1	0	1.328
24.00L	III	1:1	0.016		0.25:1	0.027	0.022
25.08L ^a	III	1:1	0.089		0.25:1	0	0.089
25.22L	III	1:1	0.125		0.25:1	0	0.125
26.15L	III	1:1	0.016		0.25:1	0.010	0.019
26.50R	III	1:1	0.105		0.25:1	0	0.105
10.90R	IV	0.85:1	0.026		Happy Valley Mitigation Site	0.2125:1	0.009
11.15R	IV	0.85:1	0.473	0.2125:1		0	0.402
23.42R	IV	0.85:1	0.015	0.2125:1		0.001	0.013
23.46R	IV	0.85:1	0.091	0.2125:1		0	0.077
23.50R	IV	0.85:1	0	0.2125:1		0.001	0.0002
24.20R	IV	0.85:1	0	0.2125:1		0.002	0.0003
25.66L	IV	0.85:1	0.044	0.2125:1		0	0.037
26.10L	IV	0.85:1	0.027	0.2125:1		0.008	0.025
TOTAL (acre-credit) proposed at the Happy Valley Mitigation Site							0.866
TOTAL (acre-credit) proposed to be purchased at the Keller Farm Mitigation Bank							3.900

^a Permanent impacts shown are related to roadway improvements. Fish barrier correction impacts are not proposed for compensatory mitigation through the use of credits at the Happy Valley Mitigation Site or the Bank because proposed fish barrier corrections provide functional lift on aquatic resources on-site.

6.4. On-site Restoration

After construction, WSDOT will mitigate for 0.763 acre of temporary impacts to wetland buffers, and 3.148 acres of temporary stream buffer impacts by replanting with native vegetation, including grasses, forbs, and shrubs adjacent to the roadway, and trees where there is a suitable setback from the roadway. Temporary stream impacts resulting from construction activities at the Sammamish River and UNT to Par Creek will also be restored to preconstruction conditions per specifications and requirements in the Hydraulic Project Approval anticipated from WDFW.

Permanent stream impacts resulting from the Project are all related to fish barrier corrections. All permanent stream impacts will be mitigated on site by constructing restored stream connections and

realigning the stream channel at the crossings. None of the road widening or fish barrier corrections will result in a net loss of stream habitat in linear feet. Additionally, portions of wetlands located at fish barrier correction sites will be permanently and temporary impacted due to realignment of the stream channels. Functions lost from these wetlands will be replaced by correcting fish barriers at Par Creek, Stream 25.0L, North Fork Perry Creek, and Queensborough Creek. These impacts occur in the North Creek subbasin, which has been urbanized with impervious surfaces, resulting in modified habitat and hydrology. Currently, these wetlands do not provide adequate foraging habitat for fish due to existing fish barriers or lack of connection to suitable habitat. Restoring fish barriers will increase the potential of non-impacted portions of the remaining wetlands and the basin to provide more suitable habitat for fish. Restoring stream connections will also improve water quality and hydrologic functions in the basin, including sediment and nutrient transport.

Overall, the Project will result in 24,330 linear feet of upstream habitat gain after fish barriers are replaced with restored stream connections at Par Creek, Stream 25.0L, North Fork Perry Creek, and Queensborough Creek. Restoring fish barriers for these streams will not only replace functions lost as a result of the Project, it will also provide long-term functional lift and ecological benefits for the North Creek basin.

6.5. Proposed On-site Buffer Mitigation at Par Creek

WSDOT proposes to use the Par Creek sites to compensate for all permanent stream buffer impact areas and permanent wetland buffer impact areas that are not otherwise mitigated through Bank credits. The proposed on-site mitigation area consists of two sites: the UNT to Par Creek site and Par Creek site. The UNT to Par Creek site is located northeast of the I-405/SR 522 interchange and entirely within WSDOT right of way. The Par Creek site is southeast of the I-405/SR 522 interchange between SR 522 and the Sammamish River Trail along Par Creek. Par Creek and UNT to Par Creek to the west have the potential to provide salmon-rearing habitat or juvenile refuge during high-flow events in the Sammamish River. The proposed sites are the most suitable for stream and buffer mitigation because of the connection to the Sammamish River. Improvements at these sites will provide the most immediate benefit to fish and wildlife within the Project vicinity.

Permanent wetland buffer impacts will be mitigated through enhancement of the degraded wetland buffer of 23.81R at the UNT to Par Creek site, and the permanent stream buffer impacts will be mitigated through enhancement of the stream buffers along UNT to Par Creek and Par Creek. These enhancements will be focused on increasing native plant diversity and habitat value in Par Creek and its surrounding wetlands and riparian areas. The goal of the mitigation at both sites is to improve riparian conditions adjacent to salmon habitat along Par Creek and UNT to Par Creek. Existing vegetation at the UNT to Par Creek sites is currently dominated by reed canarygrass (*Phalaris arundinacea*), Scot's broom (*Cytisus scoparius*), and other invasive species. The Par Creek site is mostly dominated by Himalayan blackberry (*Rubus armeniacus*). The existing plant community will be replaced with native woody vegetation appropriate to the hydrology of the site, which could include willows and dogwoods in wetter areas, and conifers and shrubs interspersed in the drier areas. At the Par Creek site, WSDOT also proposes to remove the existing pipe located approximately 50 feet upstream from the confluence of the Sammamish River, which will create approximately 40 linear feet of open channel. A conceptual mitigation plan is provided in Attachment D.

Chapter 7. Monitoring and Site Management

The Keller Farm Mitigation Bank will be monitored as established by the Mitigation Banking Instrument (MBI). The on-site restoration sites at the impact locations and Par Creek will have specific monitoring and site management requirements as outlined below, including management of noxious and invasive weeds.

7.1. Par Creek Site Monitoring and Management

The Par Creek site will be monitored for five years to ensure plant establishment. Survival will be assessed by WSDOT and the Project’s design-build contractor after initial planting, and the landscape contractor will replace all plantings that do not survive within the first year. The design-builder will also reseed any areas of bare soil within the first year. Plant substitutions, if necessary, will be agreed upon by the project biologist and landscape architect. Plants damaged or destroyed by vandalism or wildlife grazing (by waterfowl, rodents, or ungulates) will also require replacement.

7.1.1. Performance Standards

The following performance standards have been derived from the WSDOT’s *Writing Performance Standards for Wetland Mitigation* (WSDOT 2017).

Performance Standard 1 pertains to tree and shrub cover and species richness. Shrub and tree cover is expected to be at least 25 percent by the end of the 5-year monitoring period. Throughout the 5-year monitoring period, the restoration sites will maintain at least two native tree species and at least four native shrub species. Table 7 summarizes Performance Standard 1 requirements.

Table 7. Performance Standard 1: Tree and Shrub Cover and Richness

Monitoring Year	Cover	Species Richness
1	> 4 plants per 100 square feet	> 2 tree species > 4 shrub species
3	> 20%	> 2 tree species > 4 shrub species
5	> 25%	> 2 tree species and > 4 shrub species will provide > 5% relative cover

Performance Standard 2 pertains to noxious weeds and invasive plant species. WSDOT will adhere to all applicable laws for noxious and invasive weeds at the on-site restoration areas.

State law requires all Class A weeds to be eradicated. Washington State-listed or King County-listed Class A weeds observed in any area of the restoration site must be eradicated. All occurrences will be immediately reported to the site manager, and an eradication program will be initiated within 30 days of the report.

King County regulates Class B and C weeds as either designated for control or non-designated. If any of the designated Class B and C weeds are found on the site during the monitoring period, occurrences shall be immediately reported to the site manager and control measures will be initiated within 30 days of the report. All non-designated Class B and C noxious weeds or other species of concern will include less than 20 percent cover in all replanting zones throughout the 5-year monitoring period. A list of King County

Class A, and designated and non-designated Class B and C noxious weeds can be found on the King County Noxious Weed List, updated in February 2019 (King County 2019).

7.1.2. Contingency Plan

Several factors, both man-made and natural, could have a detrimental effect on the success of the mitigation. No contingency plan can foresee all problems and their solutions. In all cases, if a more effective remedy is identified, it will be considered.

Plant mortality can be the result of insufficient maintenance, particularly watering in the first few growing seasons, animal browse, competition from invasive species, flooding, disease, incorrect plant selection, altered site conditions, and vandalism. Contingencies for plant mortality and poor plant cover include:

- Plant replacement – Additional planting may be required to meet plant survival requirements. Plant species will be evaluated in relation to site conditions to determine plant substitutions.
- Weed control – Control of non-native invasive species may be required to meet survival requirements. Weed control methods could include mechanical or hand control, mulching, or herbicide application.
- Herbivore control – If plant survival is not met because of animal browse, the wildlife responsible will be identified and the appropriate control measure will be employed. This could include plant protection, fence installation, or the use of repellents.

Chapter 8. References

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- Ecology, Corps, and EPA Region 10. 2006b. *Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version 1)*. Washington State Department of Ecology Publication #06-06-011b.
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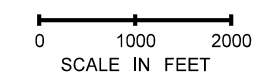
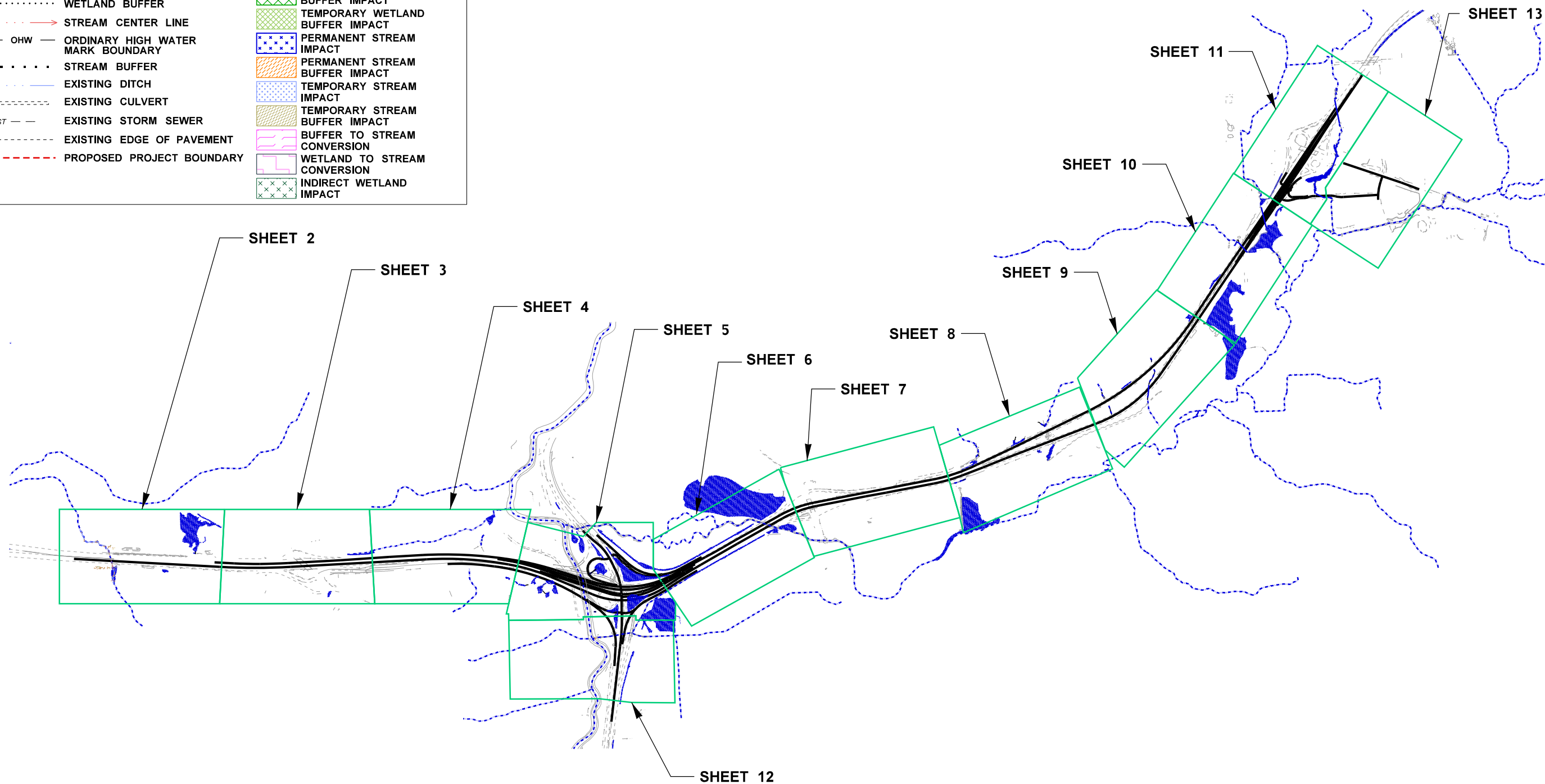
Attachment A

Wetland, Stream and Buffer Impact Exhibits

ENVIRONMENTAL LEGEND

- WETLAND
- WETLAND BOUNDARY
- WETLAND BUFFER
- STREAM CENTER LINE
- OHW — ORDINARY HIGH WATER MARK BOUNDARY
- STREAM BUFFER
- EXISTING DITCH
- EXISTING CULVERT
- EXISTING STORM SEWER
- EXISTING EDGE OF PAVEMENT
- PROPOSED PROJECT BOUNDARY
- PERMANENT WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- PERMANENT WETLAND BUFFER IMPACT
- TEMPORARY WETLAND BUFFER IMPACT
- PERMANENT STREAM IMPACT
- PERMANENT STREAM BUFFER IMPACT
- TEMPORARY STREAM IMPACT
- TEMPORARY STREAM BUFFER IMPACT
- BUFFER TO STREAM CONVERSION
- WETLAND TO STREAM CONVERSION
- INDIRECT WETLAND IMPACT

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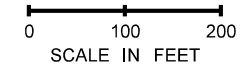
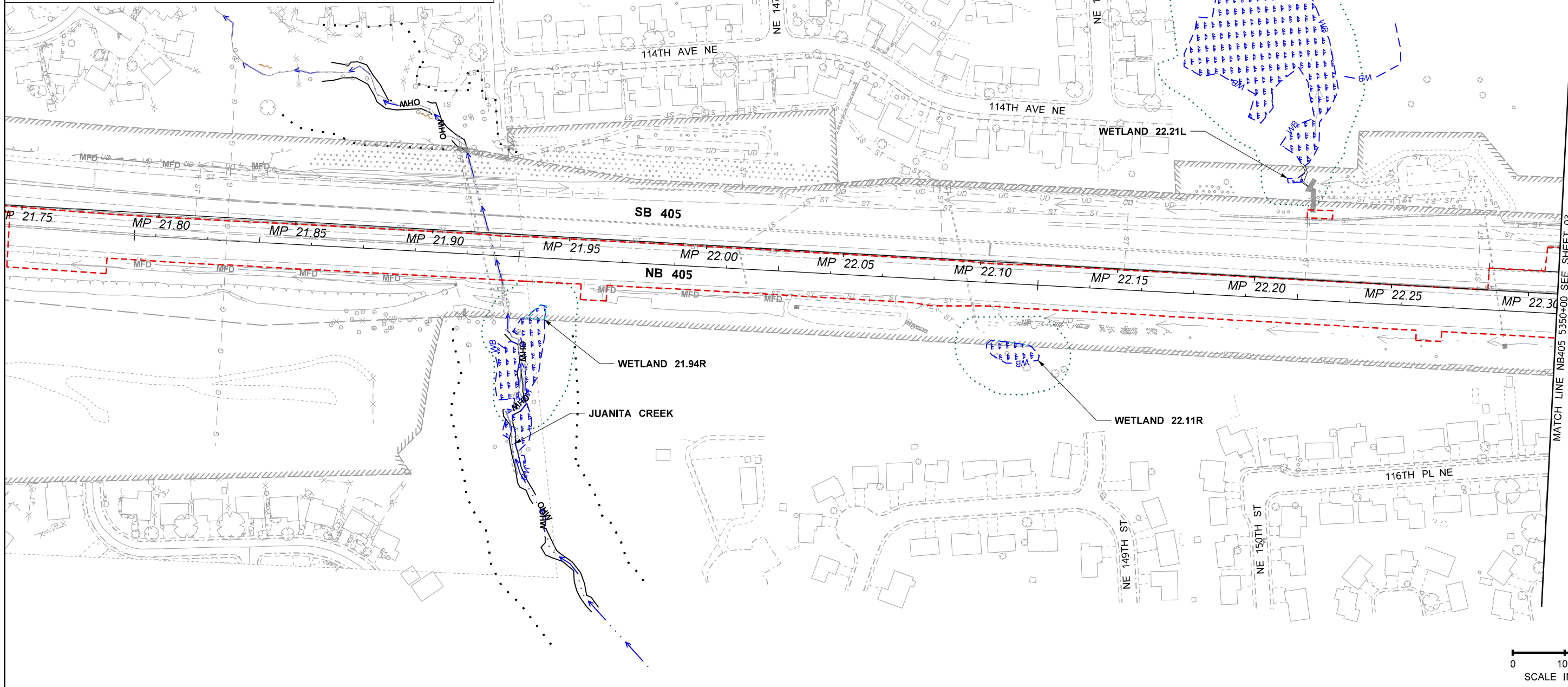



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ENTERED BY	S. TAYLOR										
CHECKED BY	M. DALZELL										
PROJ. ENGR.	C. BARNETT										
REGIONAL ADM.	K. HENRY	REVISION	DATE	BY	CONTRACT NO.	LOCATION NO.					
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ENVIRONMENTAL LEGEND

- WETLAND
- WETLAND BOUNDARY
- WETLAND BUFFER
- STREAM CENTER LINE
- OHW — ORDINARY HIGH WATER MARK BOUNDARY
- STREAM BUFFER
- EXISTING DITCH
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- INDIRECT WETLAND IMPACT



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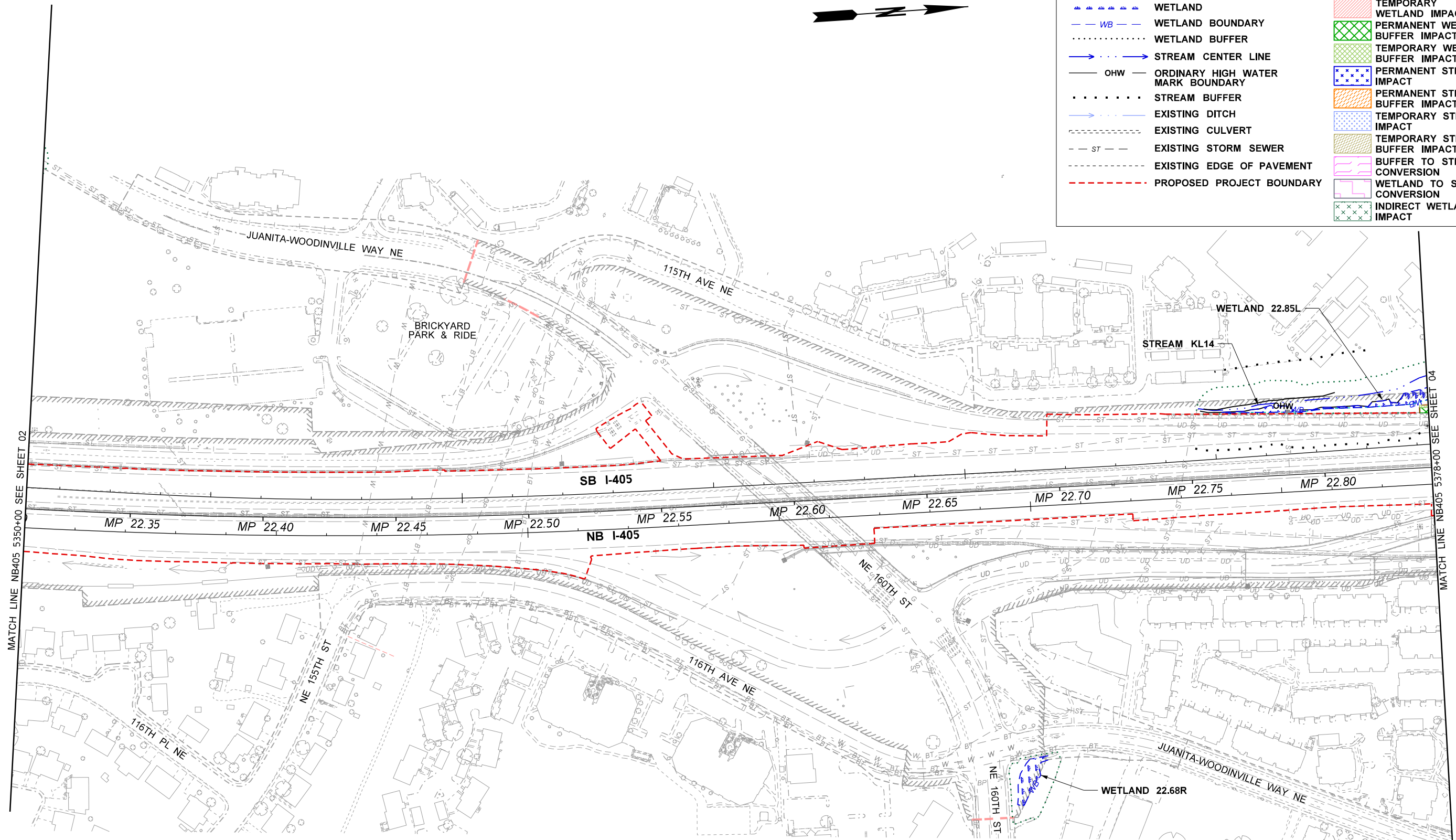
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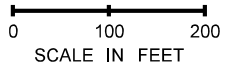
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- EXISTING CULVERT
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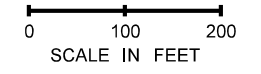
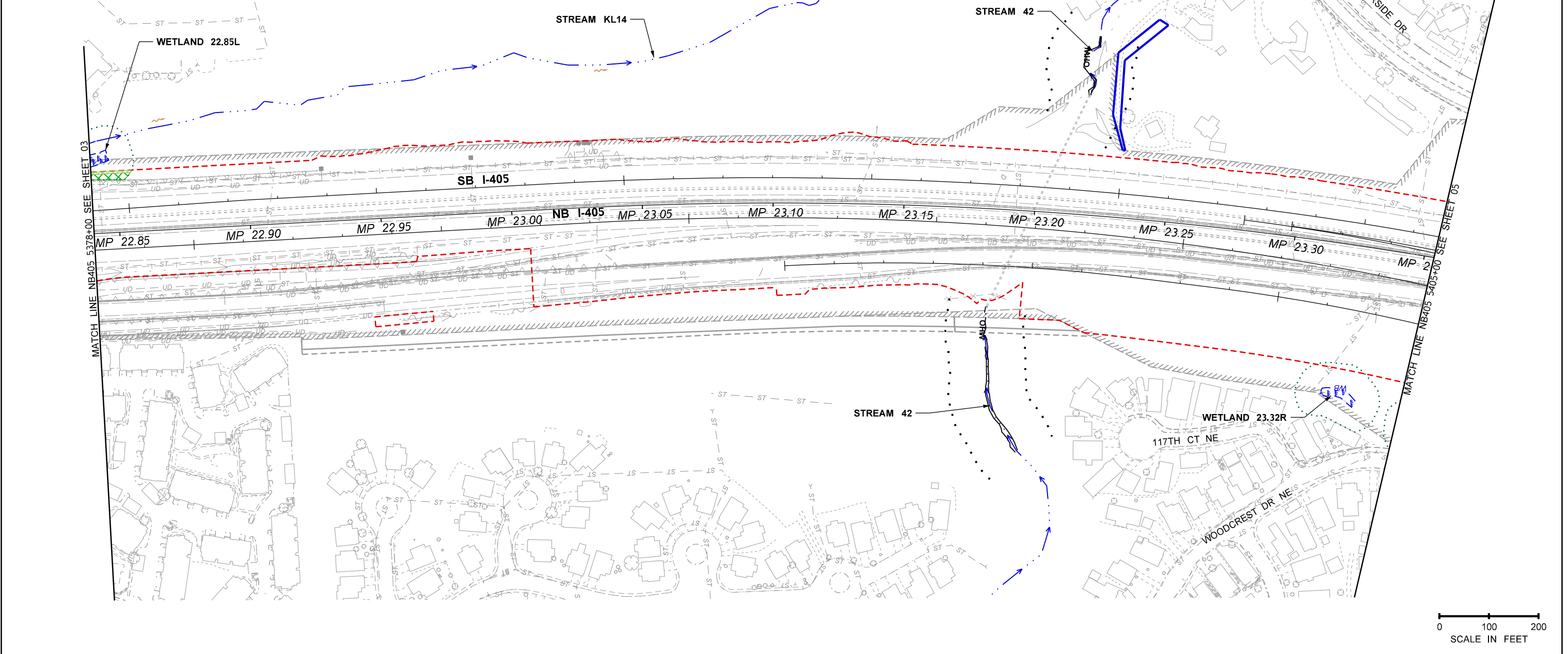


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ENTERED BY: S. TAYLOR	CHECKED BY: M. DALZELL			XL5446					
PROJ. ENGR.: C. BARNETT	REGIONAL ADM.: K. HENRY	REVISION	DATE	BY					

ENVIRONMENTAL LEGEND

- WETLAND
- WETLAND BOUNDARY
- WETLAND BUFFER
- STREAM CENTER LINE
- OHW - ORDINARY HIGH WATER MARK BOUNDARY
- STREAM BUFFER
- EXISTING DITCH
- EXISTING CULVERT
- EXISTING STORM SEWER
- EXISTING EDGE OF PAVEMENT
- PROPOSED PROJECT BOUNDARY
- PERMANENT WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- PERMANENT WETLAND BUFFER IMPACT
- TEMPORARY WETLAND BUFFER IMPACT
- PERMANENT STREAM IMPACT
- PERMANENT STREAM BUFFER IMPACT
- TEMPORARY STREAM IMPACT
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- WETLAND TO STREAM CONVERSION
- INDIRECT WETLAND IMPACT

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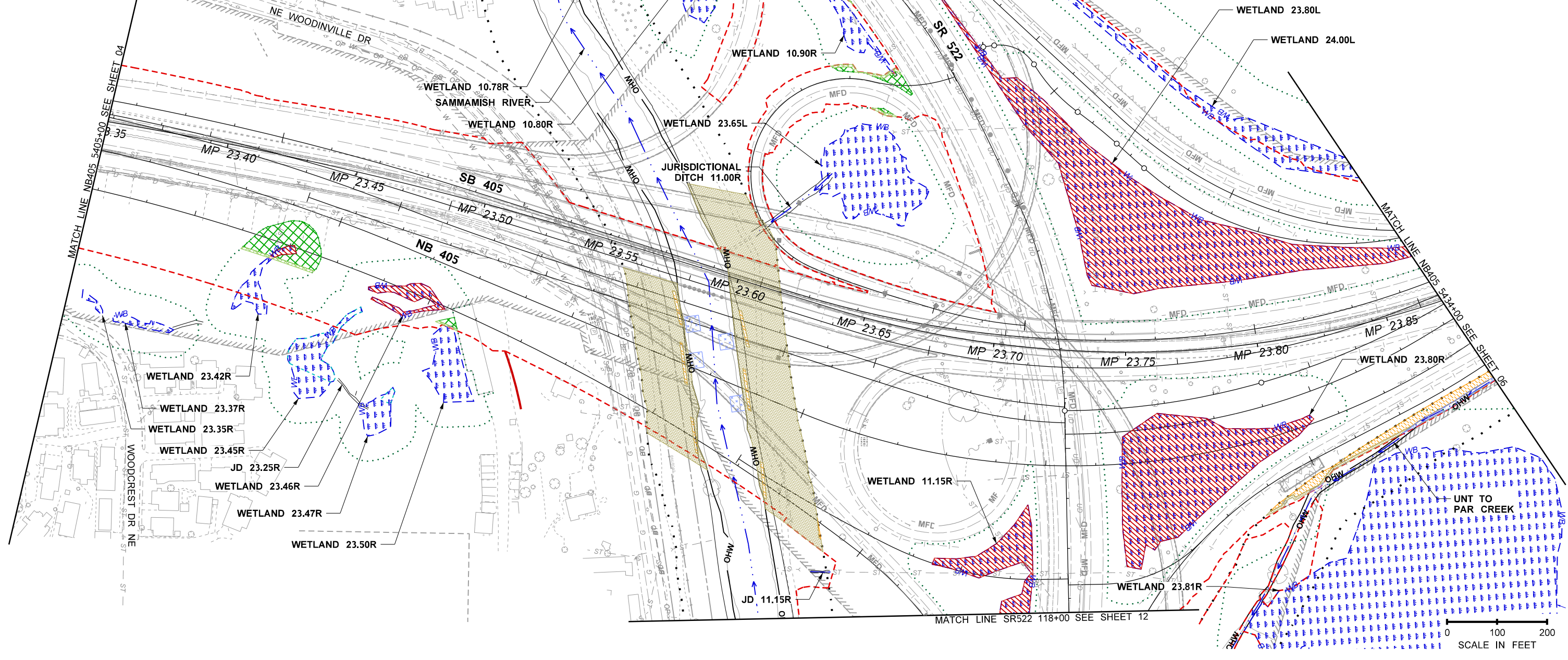


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PROJ. ENGR. C. BARNETT	REGIONAL ADM. K. HENRY	REVISION	DATE	BY					

ENVIRONMENTAL LEGEND

- WETLAND
- WETLAND BOUNDARY
- WETLAND BUFFER
- STREAM CENTER LINE
- ORDINARY HIGH WATER MARK BOUNDARY
- STREAM BUFFER
- EXISTING DITCH
- EXISTING CULVERT
- EXISTING STORM SEWER
- EXISTING EDGE OF PAVEMENT
- PROPOSED PROJECT BOUNDARY
- PERMANENT WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- PERMANENT WETLAND BUFFER IMPACT
- TEMPORARY WETLAND BUFFER IMPACT
- PERMANENT STREAM IMPACT
- PERMANENT STREAM BUFFER IMPACT
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- BUFFER TO STREAM CONVERSION
- WETLAND TO STREAM CONVERSION
- INDIRECT WETLAND IMPACT

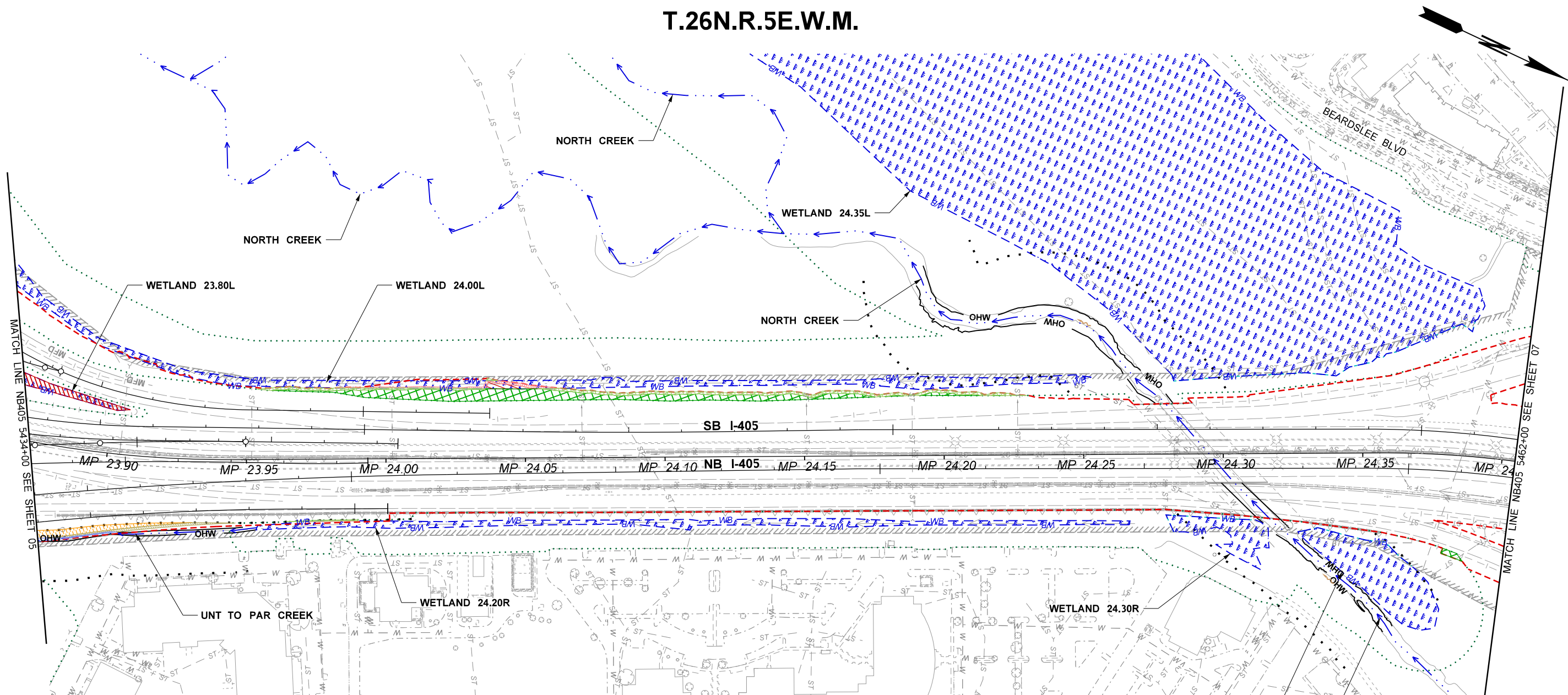
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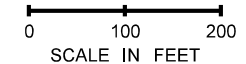
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PROJ. ENGR.: C. BARNETT	REGIONAL ADM.: K. HENRY	REVISION	DATE	BY					

T.26N.R.5E.W.M.



ENVIRONMENTAL LEGEND

WETLAND	PERMANENT WETLAND IMPACT
WETLAND BOUNDARY	TEMPORARY WETLAND IMPACT
WETLAND BUFFER	PERMANENT WETLAND BUFFER IMPACT
STREAM CENTER LINE	TEMPORARY WETLAND BUFFER IMPACT
ORDINARY HIGH WATER MARK BOUNDARY	PERMANENT STREAM IMPACT
STREAM BUFFER	PERMANENT STREAM BUFFER IMPACT
EXISTING DITCH	TEMPORARY STREAM IMPACT
EXISTING CULVERT	TEMPORARY STREAM BUFFER IMPACT
EXISTING STORM SEWER	BUFFER TO STREAM CONVERSION
EXISTING EDGE OF PAVEMENT	WETLAND TO STREAM CONVERSION
PROPOSED PROJECT BOUNDARY	INDIRECT WETLAND IMPACT



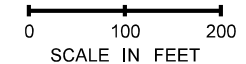
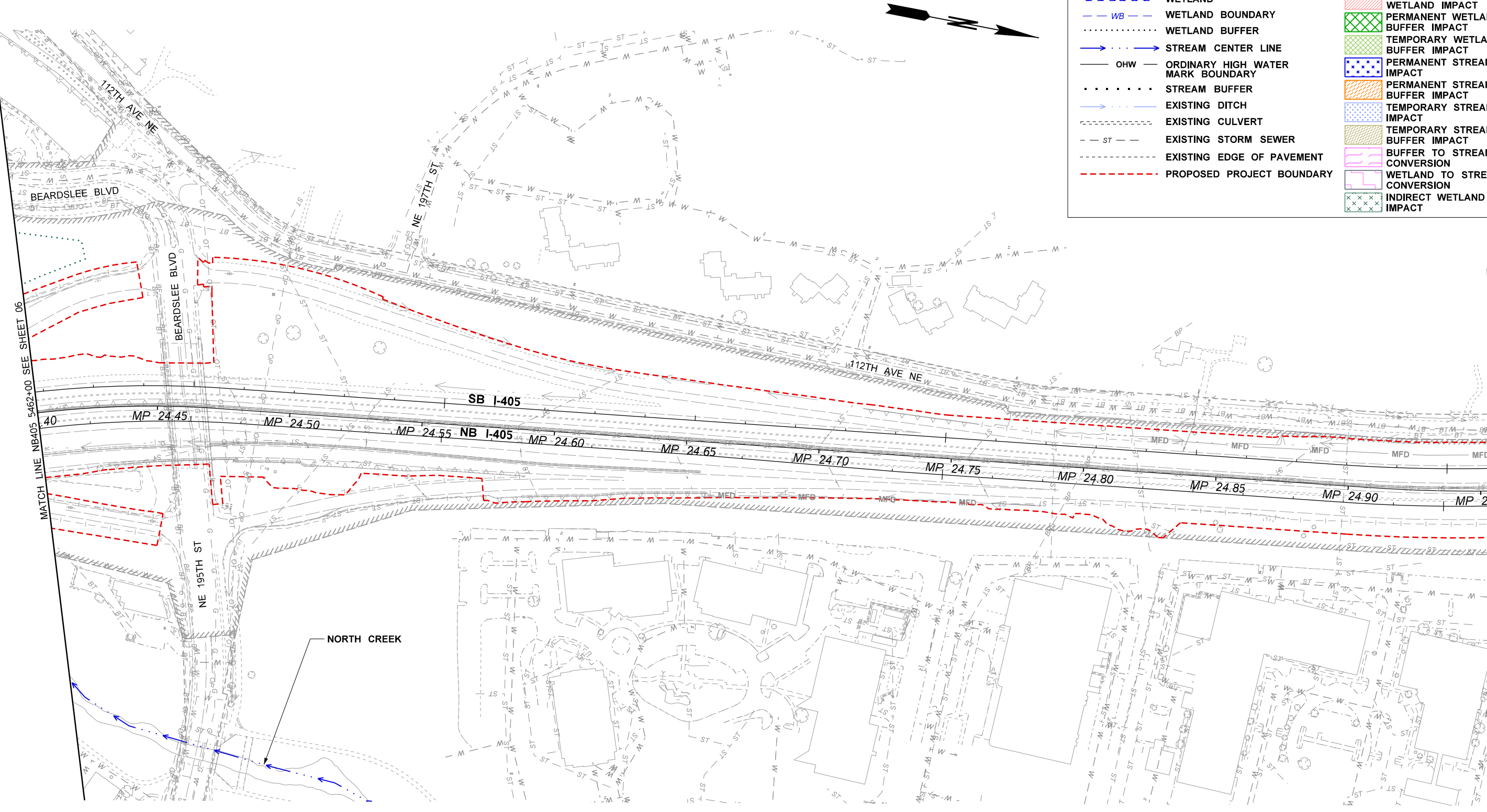
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CHECKED BY	M. DALZELL									SHEETS
PROJ. ENGR.	C. BARNETT									
REGIONAL ADM.	K. HENRY	REVISION	DATE	BY		CONTRACT NO.	LOCATION NO.			
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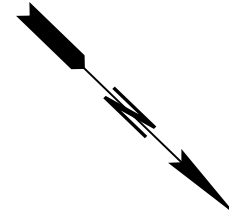
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- EXISTING DITCH
- EXISTING CULVERT
- EXISTING STORM SEWER
- EXISTING EDGE OF PAVEMENT
- PROPOSED PROJECT BOUNDARY
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- PERMANENT WETLAND BUFFER IMPACT
- TEMPORARY WETLAND BUFFER IMPACT
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- PERMANENT STREAM BUFFER IMPACT
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- TEMPORARY STREAM BUFFER IMPACT
- BUFFER TO STREAM CONVERSION
- WETLAND TO STREAM CONVERSION
- INDIRECT WETLAND IMPACT



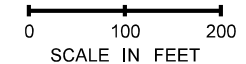
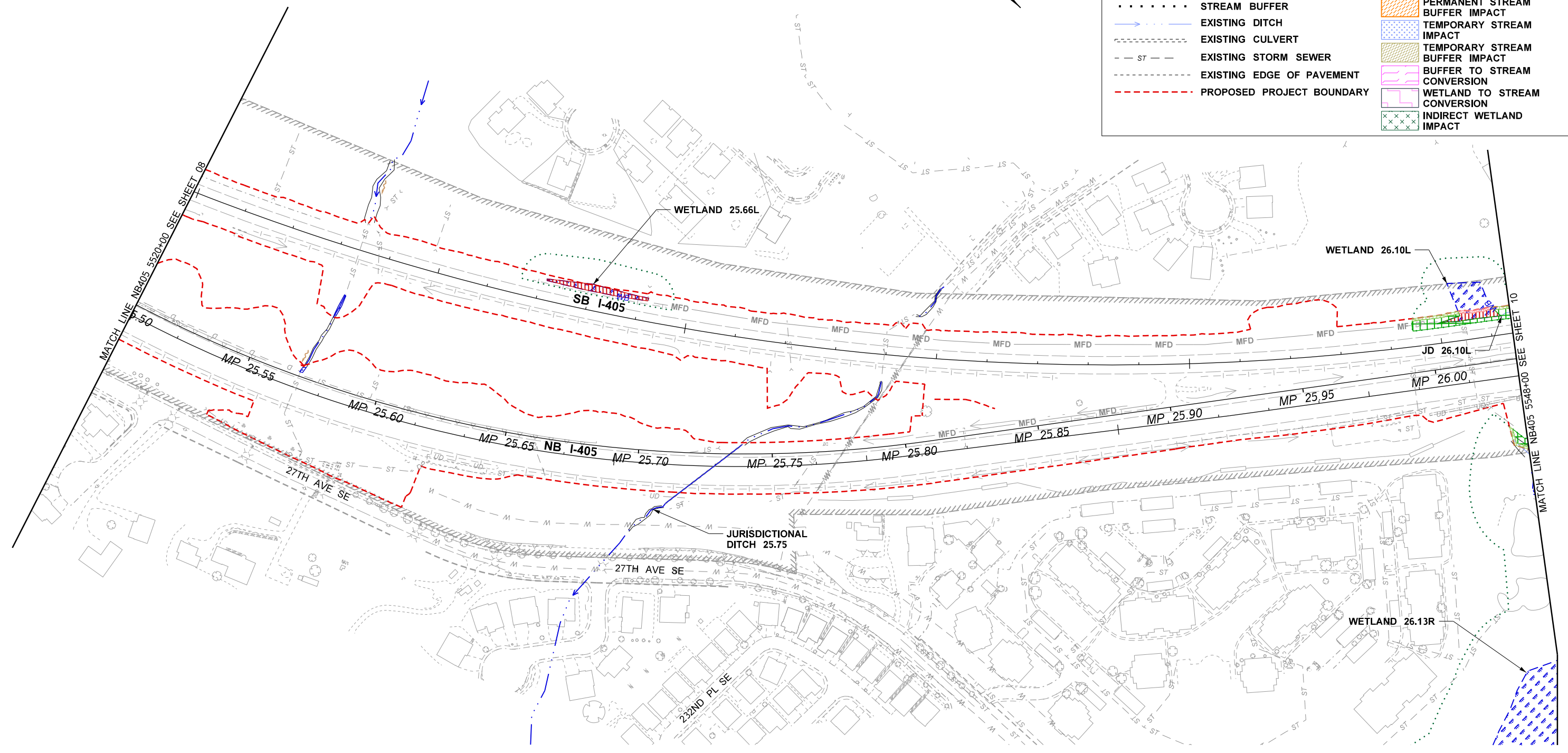
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PROJ. ENGR.: C. BARNETT	REGIONAL ADM.: K. HENRY	REVISION	DATE	BY					

T.27N.R.5E.W.M.



ENVIRONMENTAL LEGEND

- WETLAND
- WETLAND BOUNDARY
- WETLAND BUFFER
- STREAM CENTER LINE
- ORDINARY HIGH WATER MARK BOUNDARY
- STREAM BUFFER
- EXISTING DITCH
- EXISTING CULVERT
- EXISTING STORM SEWER
- EXISTING EDGE OF PAVEMENT
- PROPOSED PROJECT BOUNDARY
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- WETLAND TO STREAM CONVERSION
- INDIRECT WETLAND IMPACT

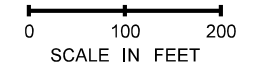
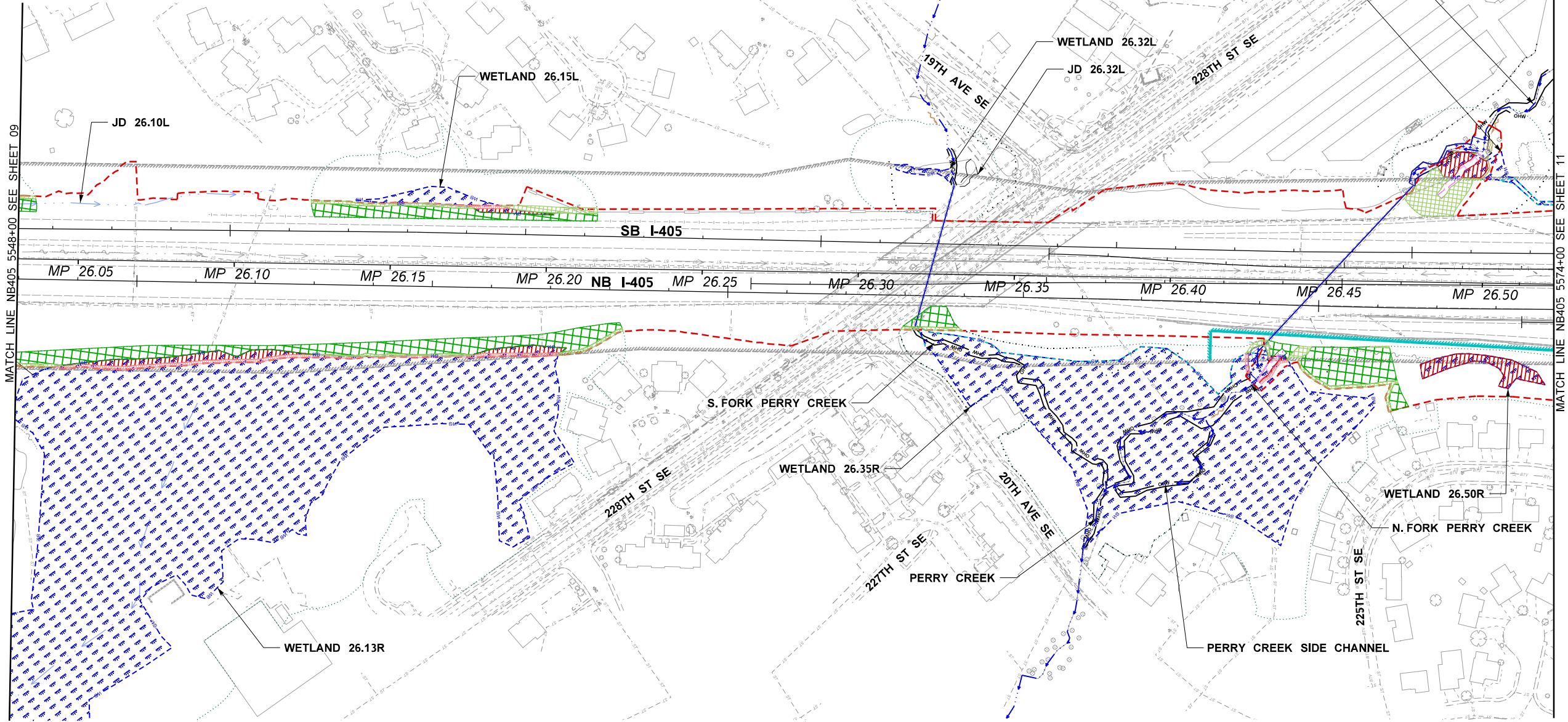
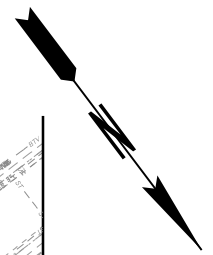


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PROJ. ENGR.: C. BARNETT	REGIONAL ADM.: K. HENRY	REVISION	DATE	BY					

ENVIRONMENTAL LEGEND

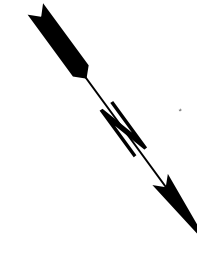
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- EXISTING CULVERT
- EXISTING STORM SEWER
- EXISTING EDGE OF PAVEMENT
- PROPOSED PROJECT BOUNDARY
- PERMANENT WETLAND IMPACT
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- PERMANENT STREAM BUFFER IMPACT
- TEMPORARY STREAM IMPACT
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- WETLAND TO STREAM CONVERSION
- INDIRECT WETLAND IMPACT

T.27N.R.5E.W.M.



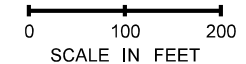
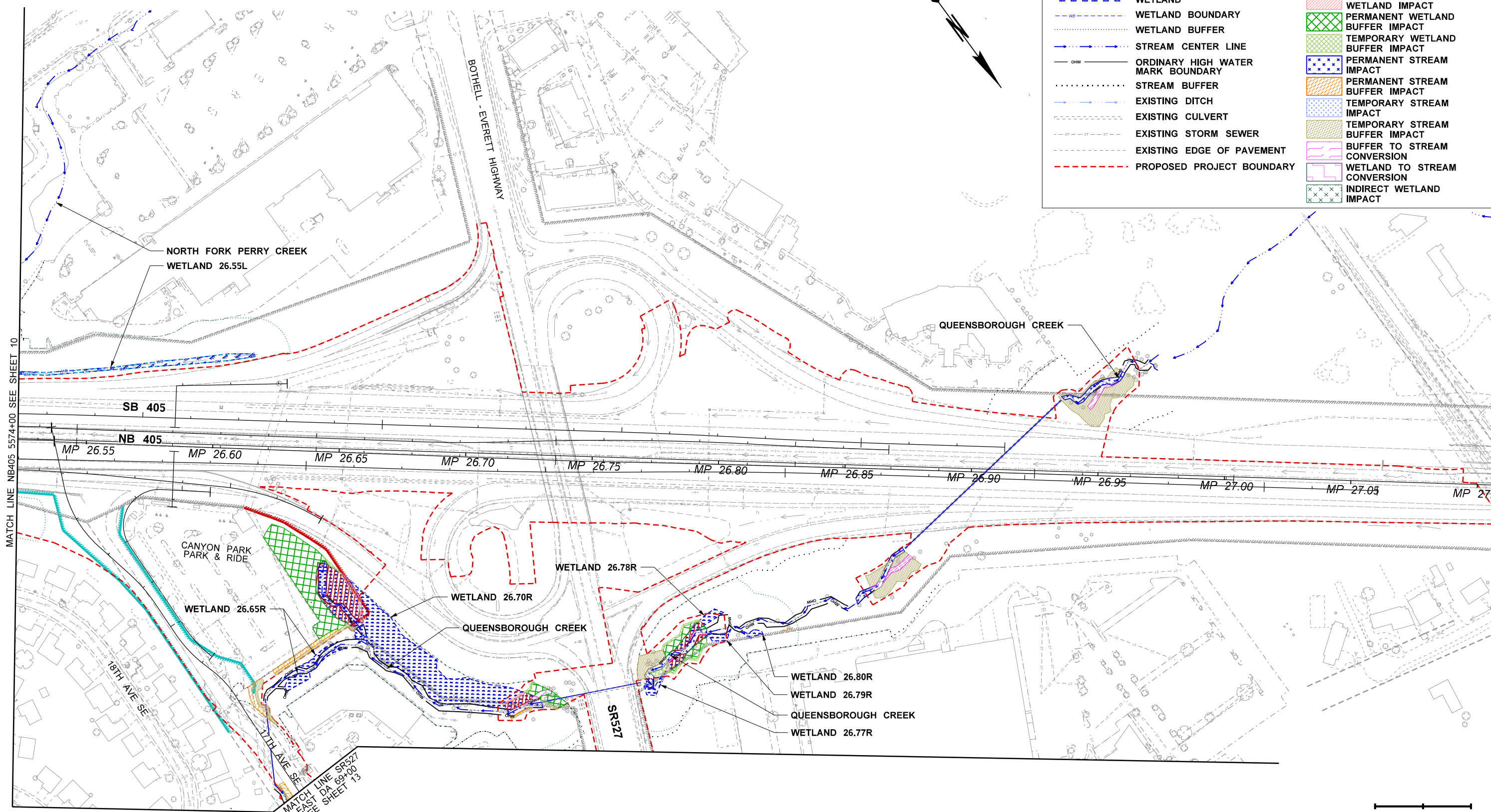
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CHECKED BY:	M. DALZELL						13					
PROJ. ENGR.:	C. BARNETT											
REGIONAL ADM.:	K. HENRY	REVISION	DATE	BY								

T.27N.R.5E.W.M.



ENVIRONMENTAL LEGEND

- WETLAND
- WETLAND BOUNDARY
- WETLAND BUFFER
- STREAM CENTER LINE
- ORDINARY HIGH WATER MARK BOUNDARY
- STREAM BUFFER
- EXISTING DITCH
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- EXISTING STORM SEWER
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- PERMANENT WETLAND IMPACT
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- BUFFER TO STREAM CONVERSION
- WETLAND TO STREAM CONVERSION
- INDIRECT WETLAND IMPACT

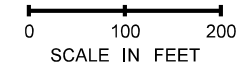
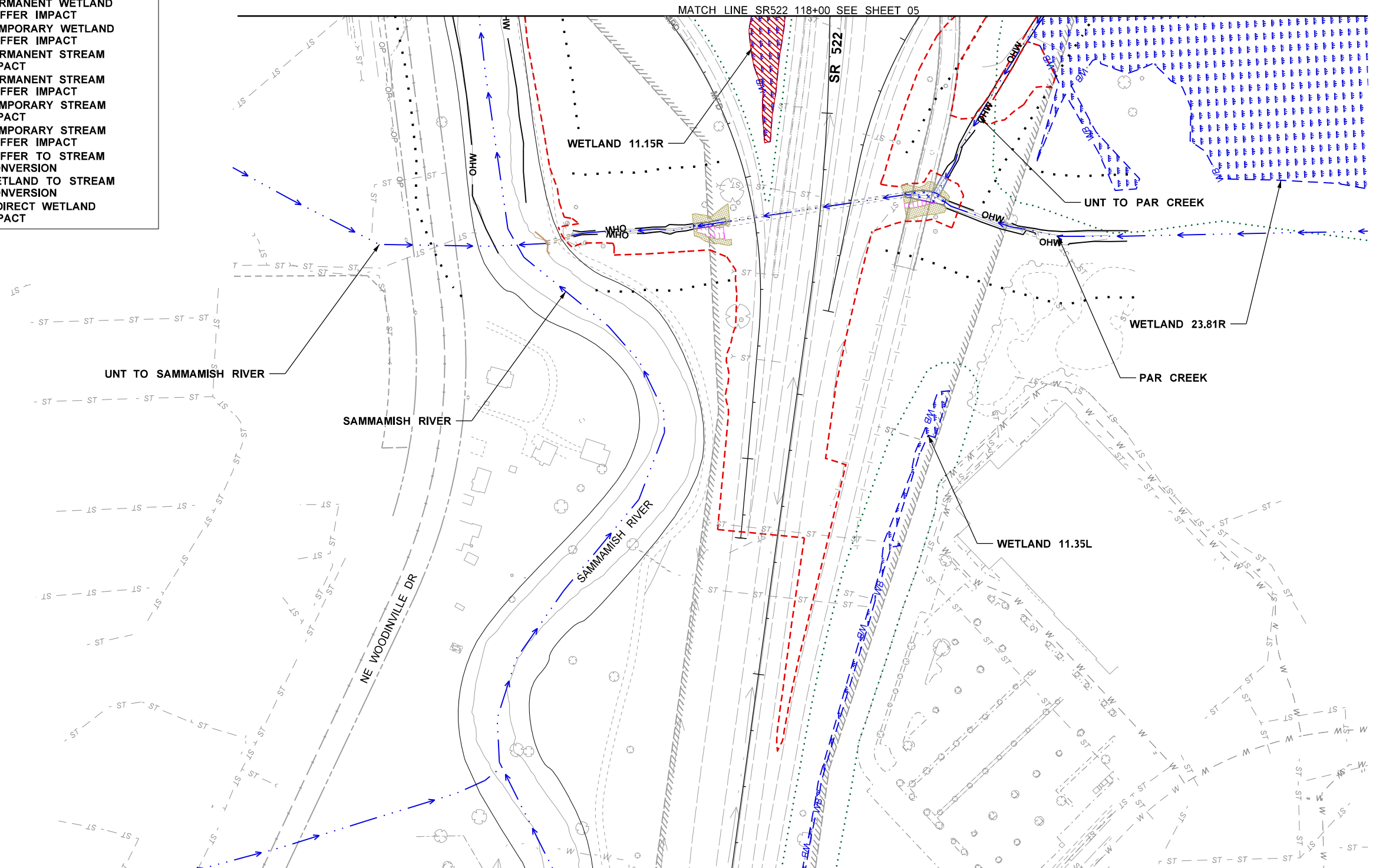


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ENVIRONMENTAL LEGEND

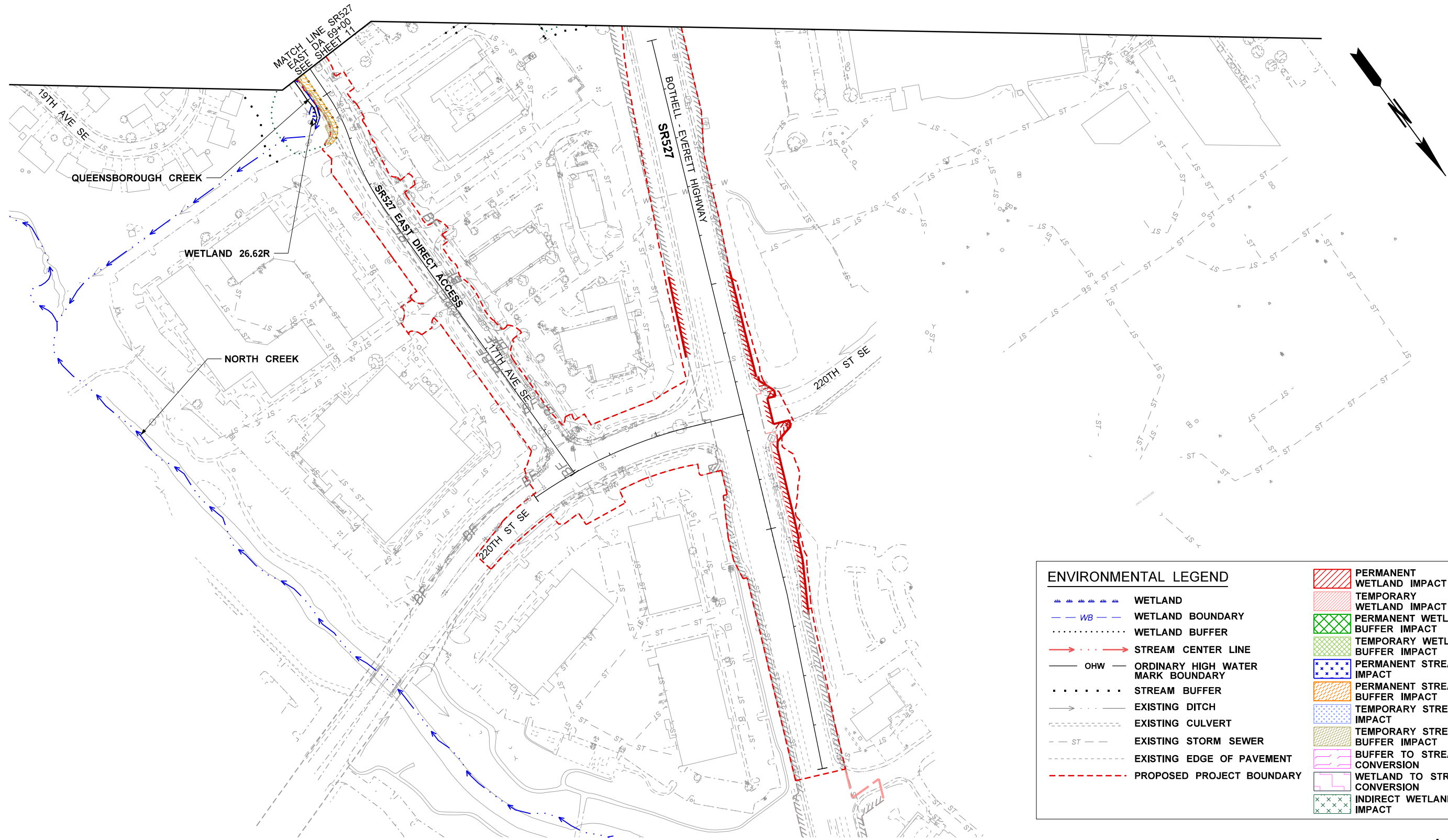
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- WETLAND TO STREAM CONVERSION
- INDIRECT WETLAND IMPACT

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REGIONAL ADM.: K. HENRY													

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ENVIRONMENTAL LEGEND			
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	WETLAND BOUNDARY		TEMPORARY WETLAND IMPACT
	WETLAND BUFFER		PERMANENT WETLAND BUFFER IMPACT
	STREAM CENTER LINE		TEMPORARY WETLAND BUFFER IMPACT
	ORDINARY HIGH WATER MARK BOUNDARY		PERMANENT STREAM IMPACT
	STREAM BUFFER		PERMANENT STREAM BUFFER IMPACT
	EXISTING DITCH		TEMPORARY STREAM IMPACT
	EXISTING CULVERT		TEMPORARY STREAM BUFFER IMPACT
	EXISTING STORM SEWER		BUFFER TO STREAM CONVERSION
	EXISTING EDGE OF PAVEMENT		WETLAND TO STREAM CONVERSION
	PROPOSED PROJECT BOUNDARY		INDIRECT WETLAND IMPACT

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PROJ. ENGR.	C. BARNETT									
REGIONAL ADM.	K. HENRY	REVISION	DATE	BY						

Attachment B

Impacted Wetland Summary Tables


Attachment B: Impacted Wetland Summary Tables

Table 1. Wetland 22.85L Summary

WETLAND 22.85L – INFORMATION SUMMARY		
Location	West of I-405 at MP 22.85 along Stream KL14	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BCM 13.13.020)	Category IV
	City of Bothell Buffer Width	50 feet
	Wetland Size in the Study Area	0.08 acres
	Cowardin Classification	PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 22.85L-WET
	Upland Data Sheet (s)	SP 22.85L-UP
	Flag color	Pink
Dominant Vegetation	Wetland 22.85L is a slope wetland dominated by a scrub-shrub vegetation community consisting almost entirely of Himalayan blackberry with some Pacific willow (<i>Salix lasiandra</i>) dominating on the northern end. Understory vegetation consists primarily of reed canarygrass. Vegetation in Wetland 22.85L meets dominance test and prevalence index for hydrophytic vegetation.	
Soils	Soils in Wetland 22.85L consist of 4 inches of very dark grayish brown (10YR 3/2) sandy loam over 6 inches of very dark gray (2.5Y 3/1) sandy loam underlain by gleyed (G1 4/10GY) silt loam with redoximorphic features. The soils meet the hydric soil criteria for F2, Loamy Gleyed Matrix.	
Hydrology	The primary source of hydrology is high groundwater and seepage from the hill slope. The hydrology indicators observed include saturation present at 6 inches. A water table was observed at 14 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. The boundaries of Wetland 22.85L were flagged where indicators of wetland vegetation, hydric soil, and wetland hydrology were present.	
Rationale for Local Rating	Wetland 22.85L is rated Category IV with a score of 6 for water quality, 4 for hydrologic functions, and 5 for habitat functions, scoring 15 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 22.85L has low site potential to improve water quality because it has a moderate slope between 2 and 5 percent and it has dense herbaceous plants over less than 90 percent of the area. It has a moderate landscape potential because more than 10 percent of the land within 150 feet of the wetland is in land uses that generate pollutants. It has a high value for water quality treatment as it directly discharges to a stream within a mile that is on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 22.85L has low site potential to reduce flooding because reed canarygrass does not have the capability to reduce the velocity of surface flows during storm events. The wetland has moderate landscape potential because more than 25 percent of the area within 150 feet uphill of the wetland is in land uses that generate excess surface runoff. The wetland has a low value for hydrologic functions because there are no problems with flooding downstream and the wetland hasn't been identified as important for flood storage.	
Habitat	Wetland 22.85L has low potential to provide habitat functions for wildlife due to low habitat diversity and lack of habitat interspersions. It has a moderate landscape potential for wildlife habitat because it is located along the riparian corridor but is also contained within an urban landscape. It has a moderate habitat value because it provides some habitat features (downed woody debris and standing snags) and is adjacent to stream KL14.	
Buffer Condition	The eastern buffer of 22.85L is composed of dense Himalayan blackberry and is cut off by a noise wall. The west side of the wetland is dominated by Himalayan blackberry with some Pacific willow trees.	


Attachment B: Impacted Wetland Summary Tables

Table 2. Wetland 23.42R Summary

WETLAND 23.42R – INFORMATION SUMMARY		
Location	East of I-405 at MP 23.42, west of Woodcrest Drive NE	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BCM 13.13.020)	Category IV
	City of Bothell Buffer Width	50 feet
	Wetland Size in the Study Area	0.09 acres
	Cowardin Classification	PSS/PEM
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 23.42R-WET
	Upland Data Sheet (s)	SP 23.42R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 23.42R is dominated by an emergent vegetation community consisting of reed canarygrass, lady fern, skunk cabbage (<i>Lysichiton americanus</i>), and creeping buttercup (<i>Ranunculus repens</i>). English ivy is also present in the wetland. The wetland is also dominated by a scrub-shrub vegetation community consisting primarily of salmonberry and vine maple.	
Soils	Soils in Wetland 23.42R consist of 7 inches of black (10YR 2/1) clay loam and 13 inches of very dark gray (5Y 3/1) sandy loam with redoximorphic features. The sample plot meets the hydric soil indicator because a hydrogen sulfide odor was present within 7 inches of the soil profile.	
Hydrology	Soils were saturated to the surface, and a water table was present at 7 inches in the soil pit. The primary source of hydrology is a high groundwater table.	
Rationale for Delineation	The presence of all three wetland criteria was met. The boundaries of Wetland 23.42R were flagged where indicators of wetland vegetation, hydric soil, and wetland hydrology were present.	
Rationale for Local Rating	Wetland 23.42R is rated Category IV with a score of 5 for water quality, 3 for hydrologic functions, and 4 for habitat functions, scoring 12 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 23.42R has low site potential to improve water quality because the wetland does not meet the criteria for plants that trap sediments and pollutants and has an average slope between 2 and 5 percent. The wetland has low landscape potential to improve water quality because there are no land uses that generate pollutants within 150 feet of the uphill side of the wetland unit. The wetland has a high value for water quality treatment as it directly discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 23.42R has low site potential to reduce flooding because there are not enough dense, uncut, rigid plants present to reduce the velocity of surface flows during storm events. The wetland has low landscape potential because less than 25 percent of the area within 150 feet upslope of the wetland is in land uses that generate pollutants. The wetland has a low value for hydrologic functions because there are no flooding problems downstream, and the wetland has not been identified as being important for flood storage.	
Habitat	Wetland 23.42R has low site potential to provide habitat for wildlife due to low habitat diversity and lack of habitat interspersions. The wetland has low landscape potential because there is less than 10 percent accessible habitat within a 1-kilometer radius of the wetland unit due to high intensity land use in the surrounding area. The wetland has a moderate value because of proximity to priority habitats.	
Buffer Condition	Wetland 23.42R is a part of a wetland complex found on a forested hillslope along I-405 that has some mature trees and a relatively undisturbed buffer. The overstory vegetation consists of balsam poplar, vine maple, cascara (<i>Frangula purshiana</i>), bigleaf maple, red alder, and black cottonwood. The understory vegetation consists of Himalayan blackberry, salmonberry, Oregon grape, and Indian plum.	


Attachment B: Impacted Wetland Summary Tables

Table 3. Wetland 23.46R Summary

WETLAND 23.46R – INFORMATION SUMMARY		
Location	North of Woodcrest Drive NE, west of Brickyard Road NE, east of I-405, south of 120th Avenue NE	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BCM 13.13.020)	Category IV
	City of Bothell Buffer Width	50 feet
	Wetland Size in the Study Area	0.09 acres
	Cowardin Classification	PSS/PFO
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 23.46R-WET
	Upland Data Sheet (s)	SP 23.46R-UP, SP 23.46R-UP2
	Flag color	Pink
Dominant Vegetation	Wetland 23.46R consists of a scrub-shrub and forested vegetation community that is dominated by Himalayan blackberry, salmonberry, fringecup, bigleaf maple, red alder, and cottonwood.	
Soils	Soils in Wetland 23.46R consist of 8 inches of very dark grayish brown (2.5Y 3/2) silty clay with redoximorphic features and 12 inches of a mixture of very dark grayish brown (2.5Y 3/2) silty clay with redoximorphic features and dark greenish grey (Gley1 4/5GY) silty clay. This sample plot meets the hydric soil indicator for Redox Depressions (F8).	
Hydrology	Soils were saturated to the surface, and water table was present at 5 inches in the soil pit. The primary source of hydrology is a high groundwater table.	
Rationale for Delineation	The presence of all three wetland criteria was met. The boundaries of Wetland 23.46R were flagged where indicators of wetland vegetation, hydric soil, and wetland hydrology were present.	
Rationale for Local Rating	Wetland 23.46R is rated Category IV with a score of 5 for water quality, 3 for hydrologic functions, and 3 for habitat functions, scoring 11 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 23.46R has low site potential to improve water quality because the wetland does not meet the criteria for plants that trap sediments and pollutants and has an average slope that is greater than 5 percent. The wetland has low landscape potential to improve water quality because there are no land uses that generate pollutants within 150 feet of the uphill side of the wetland unit. The wetland has a high value for water quality treatment as it directly discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 23.46R has low site potential to reduce flooding because there are not enough dense, uncut, rigid plants present to reduce the velocity of surface flows during storm events. The wetland has low landscape potential for hydrologic function because less than 25 percent of the contributing basin of the wetland is covered with intensive human land uses. The wetland has a low value for hydrologic functions because there are no problems with flooding downstream, and the site has not been identified as important for flood storage.	
Habitat	Wetland 23.46R has low site potential to provide habitat for wildlife due to low habitat diversity and low habitat interspersions. The wetland has low landscape potential because there is less than 10 percent of accessible habitat within a 1-kilometer radius of the wetland unit due to high intensity land use in the surrounding area. The wetland has a low value for wildlife because there are no priority habitats within 330 feet of the wetland unit.	
Buffer Condition	Wetland 23.46R is a part of a wetland complex found on a forested hillslope along I-405 that has some mature trees and a relatively undisturbed buffer. The overstory vegetation consists of balsam poplar, vine maple, cascara, bigleaf maple, red alder, and cottonwood. The understory vegetation consists of Himalayan blackberry, salmonberry, Oregon grape, and Indian plum.	


Attachment B: Impacted Wetland Summary Tables

Table 4. Wetland 23.50R Summary

WETLAND 23.50R – INFORMATION SUMMARY		
Location	North of Woodcrest Drive NE, west of Brickyard Road NE, east of I-405, south of 120th Avenue NE	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BCM 13.13.020)	Category IV
	City of Bothell Buffer Width	50 feet
	Wetland Size in the Study Area	0.20 acres
	Cowardin Classification	PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 23.50R-WET
	Upland Data Sheet (s)	SP 23.50R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 23.50R is dominated by a scrub-shrub vegetation community consisting of Himalayan blackberry, salmonberry, and red alder.	
Soils	Soils in Wetland 23.50R consist of 7 inches of very dark grayish brown (10YR 3/2) silt loam and 13 inches of a mixture of dark gray (10YR 4/1) silty clay and dark greenish grey (Gley1 4/10Y) silty clay with redoximorphic features. This sample plot meets the hydric soil indicator for a Loamy Gleyed Matrix (F2).	
Hydrology	Soils were saturated to the surface. There was no water table present within 20 inches of the soil surface due to the presence of clay soil. The primary source of hydrology is a high groundwater table.	
Rationale for Delineation	The presence of all three wetland criteria was met. The boundaries of Wetland 23.50R were flagged where indicators of wetland vegetation, hydric soil, and wetland hydrology were present.	
Rationale for Local Rating	Wetland 23.50R is rated Category IV with a score of 5 for water quality, 3 for hydrologic functions, and 3 for habitat functions, scoring 11 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 23.50R has low site potential to improve water quality because the average slope of the wetland is greater than 5 percent and more than half of the wetland has dense, woody plants. The wetland has low landscape potential to improve water quality because there are no land uses that generate pollutants within 150 feet of the uphill side of the wetland unit. The wetland has high value for water quality treatment as it directly discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 23.50R has low site potential to reduce flooding because there are not enough dense, uncut, rigid plants present to reduce the velocity of surface flows during storm events. The wetland has low landscape potential for hydrologic function because less than 25 percent of the contributing basin of the wetland is covered with intensive human land uses. The wetland has a low value for hydrologic functions because there are no problems with flooding downstream, and the site hasn't been identified as important for flood storage.	
Habitat	Wetland 23.50R has low site potential to provide habitat for wildlife due to low habitat diversity and lack of habitat interspersions. The wetland has low landscape potential because there is less than 10 percent of accessible habitat within a 1-kilometer radius of the wetland unit due to high intensity land use in the surrounding area. The wetland has a low value because there are no priority habitats within 330 feet of the wetland unit.	
Buffer Condition	Wetland 23.50R is a part of a wetland complex found on a forested hillslope along I-405 that has some mature trees and a relatively undisturbed buffer. The overstory vegetation consists of balsam poplar, vine maple, cascara, bigleaf maple, red alder, and cottonwood. The understory vegetation consists of Himalayan blackberry, salmonberry, low Oregon grape, and Indian plum. On the north edge of the wetland, no vegetated buffer is present due to an adjacent building used by the City of Bothell.	


Attachment B: Impacted Wetland Summary Tables

Table 5. Wetland 10.69R Summary

WETLAND 10.69R – INFORMATION SUMMARY		
Location	South of SR 522 at MP 10.69, north of Woodinville Drive	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	60 feet
	Wetland Size in the Study Area	0.02 acres
	Cowardin Classification	PEM
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 10.69R-WET
	Upland Data Sheet (s)	SP 10.69R-UP
Flag color	Pink	
Dominant Vegetation	Wetland 10.69R is dominated by reed canarygrass and surrounded by a dense thicket of Himalayan blackberry.	
Soils	Soils at Wetland 10.69R consist of a 6-inch organic layer over 12 inches of a dark greenish gray (G1 4/10Y) silty clay loam. A hydrogen sulfide odor was present at 6 inches below the soil surface. This sample plot meets the hydric soil indicator for a Loamy Gleyed Matrix (F2) and a Hydrogen Sulfide (A4).	
Hydrology	The primary sources of hydrology include surface runoff from surrounding hard surfaces and a high groundwater table. Saturated soils and water table were present at the soil surface.	
Rationale for Delineation	The presence of all three wetland criteria was met. The boundaries of Wetland 10.69R were flagged near the base of the steep sided slopes that define the ditch. Soils on the slope did not have any hydric soil indicators.	
Rationale for Local Rating	Wetland 10.69R is rated Category III with a score of 7 for water quality, 6 for hydrologic functions, and 3 for habitat functions, scoring 16 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 10.69R has moderate site potential to improve water quality because it is a flat depression that is dominated by emergent plants with an intermittently flowing ditch. The wetland has moderate landscape potential to improve water quality because it receives direct stormwater runoff from SR 522. The wetland has high water quality value because it discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 10.69R has moderate site potential to attenuate stormwater flows because it is a depressional wetland with an intermittently flowing ditch and has a basin area that is less than 10 times of the size of the unit. Surrounding land uses contribute to moderate landscape potential for hydrologic function support including stormwater discharges, roadway within 150 feet of the wetland, and intensive land uses in the contributing basin.	
Habitat	Wetland 10.69R has low site potential to provide habitat for wildlife due to low habitat diversity and lack of habitat interspersions. The wetland has low landscape potential because there is less than 10 percent of accessible habitat within 1-kilometer radius of the wetland unit due to high intensity land use in the surrounding area. The wetland has a low value because there are no priority habitats within 330 feet of the wetland unit.	
Buffer Condition	The buffer area to the north is truncated by the SR 522 roadway, and the remainder of the buffer is dominated by Himalayan blackberry.	


Attachment B: Impacted Wetland Summary Tables

Table 6. Wetland 10.90R Summary

WETLAND 10.90R – INFORMATION SUMMARY		
Location	South of SR 522 at MP 10.90 and north of Sammamish River Trail	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BCM 13.13.020)	Category IV
	City of Bothell Buffer Width	50 feet
	Wetland Size in the Study Area	0.15 acres
	Cowardin Classification	PEM
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 10.90R-WET
	Upland Data Sheet (s)	SP 10.90R-UP
	Flag color	Orange
Dominant Vegetation	Wetland 10.90R is dominated by a forested vegetation community that consists of soft rush, creeping bentgrass (<i>Agrostis stolonifera</i>), and reed canarygrass.	
Soils	Soils in WL 10.90R consist of 8 inches of very dark grayish brown (10YR 3/1) sandy loam over 10 inches of dark greenish gray (G1 4/5GY) clay loam with redoximorphic features. Soils meet hydric soil indicator for a Loamy Gleyed Matrix (F2).	
Hydrology	Wetland 10.90R is a slope wetland, with the dominant hydrology from surface runoff from surrounding hard surfaces and a high groundwater table. Primary hydrology indicators observed during the site visit include saturated soils to the surface, high water table to the surface, and up to 6 inches of surface water in small pocket depressions.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 10.90R is rated Category IV with a score of 7 for water quality, 4 for hydrologic functions, and 3 for habitat functions, scoring 14 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 10.90R has moderate site potential to improve water quality because it has a very gentle slope and contains dense vegetation. Its landscape potential is also moderate because more than 10 percent of the land within 150 feet upslope of the wetland generates runoff. Wetland 10.90R has rates high for water quality value because it discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 10.90R has low site potential to attenuate stormwater flows because it has less than 90 percent of uncut, rigid plant coverage. The area is likely to be regularly mowed as part of highway maintenance. It has moderate site potential for landscape because it is surrounded by runoff generating land uses. The wetland has a low value for hydrologic functions because there are no areas that regularly flood downstream.	
Habitat	Wetland 10.90R provides low site potential for habitat because it has low habitat diversity, only two hydroperiods, and no special habitat features. The wetland has low landscape potential and value due to poor connections to accessible and undisturbed habitat and lack of adjacent priority habitats.	
Buffer Condition	The buffer of Wetland 10.90R is generally less than 50 feet wide as SR 522 and ramps of SR 522 eastbound and I-405 southbound cut off the buffer. The observed buffer vegetation is primarily species common to roadside such as creeping bentgrass and Scotch's broom (<i>Cytisus scoparius</i>).	


Attachment B: Impacted Wetland Summary Tables

Table 7. Wetland 11.15R Summary

WETLAND 11.15R – INFORMATION SUMMARY		
Location	South of SR 522 at MP 11.15 and west of northbound I-405 off-ramp to eastbound SR 522	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BMC 14.04.500.B.1)	Category IV
	City of Bothell Buffer Width	50 feet
	Wetland Size in the Study Area	0.47 acres
	Cowardin Classification	PFO/PEM
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 11.15R-WET
	Upland Data Sheet (s)	SP 11.15R-UP
	Flag color	Pink
Dominant Vegetation	Dominant vegetation in Wetland 11.15R includes soft rush, creeping bentgrass, birdsfoot trefoil (<i>Lotus corniculatus</i>), fringed willowherb (<i>Epilobium ciliatum</i>) and white poplar (<i>Populus alba</i>).	
Soils	Soils in Wetland 11.15R consist of 9 inches of dark grayish brown (2.5Y 4/2) sandy loam with redoximorphic features over 9 inches of gray (10YR 5/1) loamy sand with redoximorphic features. Soils meet hydric soil indicator for a Depleted Matrix (F3).	
Hydrology	Wetland 11.15R is a depressional wetland, with the dominant hydrology from surface runoff from surrounding hard surfaces and a high groundwater table. Primary hydrology indicators observed during the site visit include saturated soils to the surface, high water table to the surface, and up to 6 inches of surface water in small pocket depressions.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 11.15R is rated Category IV with a score of 6 for water quality, 5 for hydrologic functions, and 4 for habitat functions, scoring 15 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 11.15R has low site potential to improve water quality because it has an unconstricted, permanently flowing surface outlet, has ungrazed plants over more than 50 percent of the area, and the area seasonally ponded is less than one quarter of the wetland. The wetland does receive stormwater discharges, and the area within 150 feet of the wetland generates pollutants; therefore, the landscape provides moderate site potential for water quality functions. The wetland has high water quality value because it discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 11.15R has low potential to attenuate stormwater flows due to an unconstricted outlet, low live storage (wetland is flat but has small depressions), and a basin area that is 10 to 100 times the size of the unit. Surrounding land uses, stormwater discharges, and a highly developed basin contribute to high landscape potential for hydrologic function support. The wetland has low value for hydrologic functions because flooding problems are not an issue downslope of the wetland.	
Habitat	Wetland 11.15R provides low habitat function due to two vegetation structures, two hydroperiods, low interspersions of habitat types, and no special habitat features. The wetland has low landscape potential due to poor connections to accessible and undisturbed habitat and moderate value due to its proximity to priority habitat.	
Buffer Condition	The buffer of Wetland 10.90R is generally less than 50 feet wide as SR 522 and ramps of SR 522 eastbound and I-405 northbound cut off the buffer. The observed buffer vegetation is primarily species common to roadside such as creeping bentgrass and Scotch broom.	


Attachment B: Impacted Wetland Summary Tables

Table 8. Wetland 23.65L Summary

WETLAND 23.65L – INFORMATION SUMMARY		
Location	West of I-405 southbound off-ramp to eastbound SR 522	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.64 acres
	Cowardin Classification	PFO
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 23.65L-WET
	Upland Data Sheet (s)	SP 23.65L-UP
	Flag color	None
Dominant Vegetation	Wetland 23.65L is dominated by a forested vegetation community that consists of black cottonwood, Oregon ash (<i>Fraxinus latifolia</i>) and Pacific willow with an understory of red-osier dogwood, vine maple, and creeping buttercup. This wetland was created by WSDOT as a wetland mitigation site in 1996. Most of the woody plants were planted as part of the mitigation planting.	
Soils	Soils in Wetland 23.65L consist of 3 inches of black (10YR 2/1) silt loam over a dark grayish brown (2.5Y 4/2) silty clay loam with redoximorphic features. Soils in Wetland 23.65L meet hydric soil indicators for a Depleted Matrix (F3)	
Hydrology	Soil saturation was present at 4 inches below the surface, and a water table was present at 4 inches in the soil pit. A high water table and local surface runoff are likely the primary sources of wetland hydrology.	
Rationale for Delineation	The presence of all three wetland criteria was met. The boundaries of Wetland 23.65L were verified based on the available GIS data showing the previously delineated boundary	
Rationale for Local Rating	Wetland 23.65L is rated Category III with a score of 7 for water quality, 6 for hydrologic functions, and 4 for habitat functions, scoring 17 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 23.65L has moderate site potential to improve water quality because it has an intermittently flowing ditch outlet, has persistent ungrazed plants over one half the area, and the seasonally ponded area is over one half of the wetland. The wetland has moderate site potential for water quality functions because it receives stormwater discharges, and the area within 150 feet of the wetland generates pollutants. The wetland has a high value for water quality improvements because it receives stormwater inputs and it is located in the Sammamish River basin. The Sammamish River is on the 303(d) list.	
Hydrologic	Wetland 23.65L has moderate site potential to provide hydrologic functions because the wetland has an intermittently flowing outlet and stores some runoff during storm events. The wetland has a high landscape potential for hydrologic function support because of surrounding land uses, stormwater discharges, and a highly developed basin. The wetland has a low value for hydrologic function because flooding problems are not an issue downslope of the wetland.	
Habitat	Wetland 23.65L has low site potential to provide habitat functions for wildlife due to low diversity and lack of habitat interspersion. The wetland has low landscape potential due to poor connections to accessible and undisturbed habitat and moderate for societal value because it is within 330 ft of a priority habitat.	
Buffer Condition	The buffer of Wetland 23.65L is dominated by Douglas fir, salmonberry, red elderberry, and Himalayan blackberry. The wetland is within the cloverleaf of the intersection and some areas are truncated by the ramp.	


Attachment B: Impacted Wetland Summary Tables

Table 9. Wetland 23.80L Summary

WETLAND 23.80L – INFORMATION SUMMARY		
Location	West of I-405, north of SR 522, and east of I-405 southbound off-ramp to westbound SR 522	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	2.21 acres
	Cowardin Classification	PEM/PSS
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 23.80L-WET
	Upland Data Sheet (s)	SP 23.80L-UP
	Flag color	Pink
Dominant Vegetation	Wetland 23.80L is composed of emergent and scrub-shrub vegetation communities. The emergent community is located on the perimeter of the wetland and is dominated by creeping bentgrass and reed canarygrass. The scrub-shrub community is located in the middle of the wetland and is dominated by white poplar saplings.	
Soils	Soils in Wetland 23.80L consist of 6 inches of very dark grayish brown (10YR 3/2) silt loam over 8 inches of greenish gray (G1 5/10Y) sandy loam with redoximorphic features and at least 5 inches of very dark grayish brown (10YR 3/2) sandy loam. Wetland 23.80L meets hydric soil indicators for a Loamy Gleyed Matrix (F2).	
Hydrology	Soil saturation was present at 4 inches below the surface, and a water table was present at 6 inches in the soil pit. A high water table is likely the primary source of hydrology for this wetland.	
Rationale for Delineation	The presence of all three wetland criteria was met. The boundaries of Wetland 23.80L were flagged where indicators of wetland vegetation, hydric soil, and wetland hydrology were present. The southern part of the wetland goes under an overpass.	
Rationale for Local Rating	Wetland 23.80L is rated Category III with a score of 7 for water quality, 6 for hydrologic functions, and 3 for habitat functions, scoring 17 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 23.80L has moderate site potential to improve water quality because it has an intermittently flowing ditch and is over 95 percent covered by persistent, ungrazed plants. Because it is located immediately adjacent to I-405 and SR 522, the surrounding landscape provides moderate potential to support the water quality function of this wetland. This wetland is located in the Sammamish River basin. The Sammamish River is on the 303(d) list.	
Hydrologic	Wetland 23.80L has moderate site potential to reduce flooding and erosion because it has some flood storage capacity. Surrounding roadways provide high potential to support hydrologic functions of the wetland.	
Habitat	Wetland 23.80L has low site potential to provide habitat for wildlife due to its location, low species diversity, and lack of habitat interspersions. Special habitat features observed in the wetland include large downed woody debris and standing snags. The wetland scored low for landscape potential and value due to poor connections to accessible and undisturbed habitat and lack of adjacent priority habitats.	
Buffer Condition	Wetland 23.80L is bounded by I-405 to the east, the I-405 off-ramp to SR 522 to the north and west, and SR 522 to the south; therefore, the vegetated buffer of Wetland 23.80L is limited and is dominated by Himalayan blackberry and Scotch broom.	


Attachment B: Impacted Wetland Summary Tables

Table 10. Wetland 23.80R Summary

WETLAND 23.80R – INFORMATION SUMMARY		
Location	East of I-405, north of SR 522, and west of SR 522 off-ramp to I-405 northbound	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	1.33 acres
	Cowardin Classification	PEM/PSS
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 23.80R-WET
	Upland Data Sheet (s)	SP 23.80R-UP
	Flag color	Pink
Dominant Vegetation	Wetlands 23.80R is composed of emergent and scrub-shrub vegetation communities. The emergent community is dominated by creeping bentgrass. The scrub-shrub community is dominated by white poplar saplings and Himalayan blackberry with an understory of creeping bentgrass and reed canarygrass.	
Soils	Soils in Wetland 23.80R consist of 6 inches of very dark grayish brown (10YR 3/2) silt loam over 10 inches of greenish gray (G1 5/10Y) sandy loam with redoximorphic features and at least 2 inches of very dark grayish brown (10YR 3/2) sandy loam. Wetland 23.80R meets hydric soil indicators for a Loamy Gleyed Matrix (F2).	
Hydrology	Soil saturation was present at 6 inches below the surface, and a water table was present at 14 inches in the soil pit. A high water table is likely the primary source of hydrology for this wetland.	
Rationale for Delineation	The presence of all three wetland criteria was met. The boundaries of Wetland 23.80R were flagged where indicators of wetland vegetation, hydric soil, and wetland hydrology were present.	
Rationale for Local Rating	Wetland 23.80R is rated Category III with a score of 7 for water quality, 6 for hydrologic functions, and 3 for habitat functions, scoring 16 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 23.80R has moderate site potential to improve water quality because it has an intermittently flowing ditch and is over 95 percent covered by persistent, ungrazed plants. Because it is located immediately adjacent to I-405 and SR 522, the surrounding landscape provides moderate potential to support the water quality function of this wetland. This wetland is located in the Sammamish River basin. The Sammamish River is on the 303(d) list.	
Hydrologic	Wetland 23.80R has moderate site potential to reduce flooding and erosion because it has some flood storage capacity. Surrounding roadway runoff provides high landscape potential to support hydrologic functions of the wetland. The site has low value for hydrologic support functions because there are no reported flooding problems downstream.	
Habitat	Wetland 23.80R has low potential to provide habitat for wildlife due to its location, low species diversity, and low habitat interspersion. The wetland scored low for landscape potential and value due to poor connections to accessible and undisturbed habitat and lack of adjacent priority habitats.	
Buffer Condition	Wetland 23.80R is bounded by I-405 to the west, the I-405 on-ramp to SR 522 to the east, and SR 522 to the south. Therefore, the vegetated buffer of Wetland 23.80L is limited and primarily consists of roadside vegetation such as creeping bentgrass and Kentucky bluegrass as well as Himalayan blackberry and Scotch broom). Snowberry is also present between I-405 and the wetland.	


Attachment B: Impacted Wetland Summary Tables

Table 11. Wetland 24.00L Summary

WETLAND 24.00L – INFORMATION SUMMARY		
Location	West of I-405 along University of Washington Bothell/Cascadia College wetland mitigation site	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	105 feet
	Wetland Size in the Study Area	1.14 acres
	Cowardin Classification	PEM
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 24.00L-WET
	Upland Data Sheet (s)	SP 24.00L-UP
	Flag color	Pink/orange
Dominant Vegetation	Wetland 24.00L is dominated by reed canarygrass. Some Himalayan blackberry and western touch-me-not (<i>Impatiens noli-tangere</i>) are also present.	
Soils	Soils in the wetland displayed a distinct hydrogen sulfide odor at 6 inches below the surface. The soils consist of dark grayish brown (10YR 3/2) silt loam with no redoximorphic features in the first 8 inches, underlain by 10 inches of dark grayish brown (10YR 3/2) silt loam with redoximorphic features. Soils meet hydric soil indicators for a Hydrogen Sulfide (A4) and a Redox Dark Surface (F6).	
Hydrology	A water table was present at 6 inches below the surface and the soils were saturated to the surface. This area appears to be supported by high groundwater and surface runoff.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetland boundary flags were placed along a topographic boundary that corresponded to a change in soil moisture and soil coloration.	
Rationale for Local Rating	This wetland was scored as a Category III wetland with a score of 7 for water quality, 7 for hydrology, and 5 for habitat; scoring 19 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 24.00L has moderate site potential to improve water quality because it has an intermittently flowing outlet, has persistent ungrazed plants over 50 percent of the area, and contains over 50 percent of seasonally ponding area. It has moderate landscape potential because it receives stormwater runoff from the adjacent roadway. The wetland has high for water quality value because it discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 24.00L has a high site potential to attenuate stormwater flows due to the intermittently flowing outlet and its ability to impound water. Surrounding land uses contribute to high landscape potential for hydrologic function support, including stormwater discharges, roadway and other paved surfaces within 150 feet of the wetland, and intensive land use in the contributing basin. The wetland has low value for hydrologic function because flooding problems are not an issue downstream.	
Habitat	Wetland 24.00L provides low habitat function due to one vegetation structure, two hydroperiods, low species richness, no interspersions of habitat types, and no special habitat features. The wetland has moderate landscape potential due to some presence of accessible habitat and undisturbed habitats. It has moderate habitat value due to its proximity to North Creek, a listed priority habitat.	
Buffer Condition	Wetland 24.00L is located immediately adjacent to I-405 southbound and the off-ramp to westbound SR 522. This wetland is separated from the UW Bothell/Cascadia College wetland mitigation site by a berm. As a result, the eastern portion of the buffer is truncated by the roadway and the western portion of the buffer provides a full suite of buffer functions.	


Attachment B: Impacted Wetland Summary Tables

Table 12. Wetland 24.20R Summary

WETLAND 24.20R – INFORMATION SUMMARY		
Location	East of I-405, south of North Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BCM 13.13.020)	Category IV
	City of Bothell Buffer Width	40 feet
	Wetland Size in the Study Area	0.39 acres
	Cowardin Classification	PEM
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 24.20R-WET
	Upland Data Sheet (s)	SP 24.20R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 24.20R is a palustrine emergent wetland. Dominant vegetation includes reed canarygrass and Himalayan blackberry.	
Soils	Soils in the wetland consist of 3 inches of very dark brown (10YR 2/2) silt loam over 7 inches of dark gray (2.5Y 4/1) silty clay loam with redoximorphic features over 8 inches of very dark gray (2.5Y 3/1) silty clay loam with redoximorphic features. Soils in the wetland meet the hydric soil indicator for a Depleted Matrix (F3).	
Hydrology	Wetland 24.20R is located in a narrow swale adjacent to I-405 and feeds into Unnamed Tributary to Par Creek. Primary hydrology is surface runoff from I-405 and adjacent business parking lots. Observed hydrology indicators include saturation, a high water table, and surface water.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 24.20R is rated Category IV with a score of 6 for water quality, 4 for hydrologic functions, and 3 for habitat functions, scoring 13 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 24.20R has low site potential to improve water quality because it has a slope between 1 and 2 percent and has dense, uncut, herbaceous plants over more than half the area, but lacks clay or organic soil. Areas within 150 feet on the uphill side of the wetland generate pollutants, resulting in moderate potential to support water quality functions. The wetland has high value for water quality improvements because it discharges directly to a stream on the 303 (d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 24.20R has low site potential to attenuate stormwater flows due to lack of dense, uncut rigid plant cover. Surrounding land uses contribute to moderate landscape potential for hydrologic function support. The wetland has low value for hydrologic function because flooding problems are not an issue in the downstream basin of this wetland.	
Habitat	Wetland 24.20R provides low habitat function due to one vegetation structure, two hydroperiods, low species richness, no interspersions of habitat types, and no special habitat features. The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and low habitat value due to lack of proximity to priority habitats.	
Buffer Condition	Wetland 24.20R is located immediately adjacent to northbound I-405 and is sandwiched by a series of office parks on the other side. As a result, the vegetated buffer is limited to narrow strips between I-405 and the office park. Much of the buffer consists of Himalayan blackberry and reed canarygrass with some Douglas firs.	


Attachment B: Impacted Wetland Summary Tables

Table 13. Wetland 24.35R Summary

WETLAND 24.35R – INFORMATION SUMMARY		
Location	East of I-405 at MP 24.35, north of North Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	60 feet
	Wetland Size in the Study Area	0.06 acres
	Cowardin Classification	PEM
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 24.35R-WET
	Upland Data Sheet (s)	SP 24.35R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 24.35R is a palustrine emergent wetland. Dominant vegetation includes reed canarygrass and broadleaf cattail (<i>Typha latifolia</i>).	
Soils	Soils in the wetland consist of 5 inches of very dark gray (10YR 3/1) silt loam over 4 inches of very dark grayish brown (10YR 3/2) sand with redoximorphic features over 9 inches of dark gray (10YR 4/1) silty clay with redoximorphic features. Soils in the wetland meet hydric soil indicators for a Sandy Redox (S5) and a Depleted Matrix (F3).	
Hydrology	Wetland 24.35R is located on a bench adjacent to North Creek. Portions of the wetland may receive overbank flooding, but dominant hydrology is from high groundwater and surface runoff. The wettest portions of Wetland 24.35R are located in a narrow swale immediately adjacent to the road prism of northbound I-405. Surface water up to 4 inches deep was observed in this swale. Other hydrology indicators include saturation and a high water table.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 24.35R is rated Category III with a score of 7 for water quality, 7 for hydrologic functions, and 4 for habitat functions, scoring 18 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 24.35R has moderate site potential to improve water quality because it is a depression with an intermittently flowing outlet, has persistent ungrazed plants over 95 percent of the area, and has seasonal ponding over less than one quarter of the wetland. The wetland receives stormwater discharges and the area within 150 feet of the wetland generates pollutants; therefore, the landscape provides moderate site potential for water quality functions. The wetland has high value for water quality improvements because it directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 24.35R has moderate site potential to attenuate stormwater flows because it is a depressional wetland with an intermittently flowing outlet, is mostly flat but with small depressions, and has a basin area that is less than 10 times the size of the unit. Surrounding land uses contribute to high landscape potential for hydrologic function support, including stormwater discharges, roadway, and other paved surfaces within 150 feet of the wetland, and intensive land use in the contributing basin. The wetland has low value for hydrologic function because there are no flooding concerns downstream of the wetland.	
Habitat	Wetland 24.35R has low habitat function due to one vegetation structure, three hydroperiods, no interspersions of habitat types, and one special habitat feature (undercut banks along North Creek). The wetland has low landscape potential due to poor connections to accessible and undisturbed habitat, and moderate habitat value due to proximity to two priority habitats	
Buffer Condition	The western portion of the buffer is truncated by northbound I-405. Remaining vegetated buffer areas consist of reed canarygrass with some red alder and Douglas fir trees.	


Attachment B: Impacted Wetland Summary Tables

Table 14. Wetland 25.03R Summary

WETLAND 25.03R – INFORMATION SUMMARY		
Location	East of I-405 at Milepost 25.03, west of North Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby, 2004)	Category II
	City of Bothell Rating	Category II
	City of Bothell Buffer Width	165 feet
	Wetland Size in the Study Area	4.32 acres
	Cowardin Classification	PAB/PEM/PSS
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 25.03R-WET
	Upland Data Sheet (s)	SP 25.03R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 25.03R is a palustrine emergent, aquatic bed and scrub-shrub wetland. Dominant vegetation includes reed canarygrass (<i>Phalaris arundinacea</i>) and lady's thumb (<i>Persicaria maculosa</i>). Scrub-shrub communities consisted primarily of Sitka willow (<i>Salix sitchensis</i>). The wetland meets the dominance test for hydrophytic vegetation.	
Soils	Sulfidic odor was present at 6 inches below the surface. Soils in Wetland 25.03R consist of 17 inches of very dark gray (10YR 3/1) silt loam under 6 inches of very dark brown (10YR 2/2). The soils are mapped as Mukilteo Muck. Soils in the wetland meet the hydric indicator for A4 hydrogen sulfide.	
Hydrology	Wetland 25.03R is a depressional wetland with overbank flooding from North Creek, a high groundwater table and stormwater runoff from nearby developments out-letting into the wetland. The wetland is located within the mapped FEMA 100-year floodplain. Surface water ponding was observed. Hydrology indicators meet High Water Table with surface water present at 0 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 25.03R is rated Category II with a score of 8 for water quality, 8 for hydrologic functions, and 6 for habitat functions, scoring 22 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 25.03R has a high site potential to improve water quality because it has intermittently flowing drainages that outlet to North Creek, has persistent vegetation that covers more than 50 percent of its area and is seasonally ponded for over 50 percent of its area. It has moderate landscape potential because it receives stormwater runoff from the adjacent developments. It has high value for water quality improvements because it discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 25.03R has a moderate site potential to affect hydrologic functions because it has moderate storage capacity but has intermittently flowing outlets. It has a high landscape potential because it receives stormwater and occurs within an urban landscape. It has a high value for hydrologic support functions because areas immediately downstream are prone to flooding.	
Habitat	Wetland 25.03R has a moderate site potential for habitat functions because it has multiple structural habitat diversity and hydrologic regimes as well as special habitat features such as large woody debris, snags, and persistent thin-stemmed plants. The wetland has low landscape potential because there are few adjacent available habitat areas. The overall habitat value is high because of the riparian habitat provided by the stream.	
Buffer Condition	The wetland has a narrow, vegetated buffer due to it being bounded to the north and west by commercial developments and Monte Villa Parkway. To the south, the wetland is bordered by a trail built on a berm. Vegetation observed in the narrow buffer includes ornamental and native trees and Himalayan blackberry (<i>Rubus armeniacus</i>).	


Attachment B: Impacted Wetland Summary Tables

Table 15. Wetland 25.08L Summary

WETLAND 25.08L – INFORMATION SUMMARY		
Location	West of I-405 at MP 25.08 at Stream 25.0L	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.14 acres
	Cowardin Classification	PEM/PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 25.08L-WET
	Upland Data Sheet (s)	SP 25.08L-UP
	Flag color	Pink
Dominant Vegetation	Wetland 25.08L is a palustrine emergent and scrub-shrub wetland. The slope wetland is dominated by reed canarygrass and Himalayan blackberry. Plant communities in the wetland meet the dominance test and prevalence index for hydrophytic vegetation.	
Soils	Soils in Wetland 25.08L consist of 10 inches of dark grayish brown (10YR 3/2) sandy loam over another 10-inch layer of dark grayish brown sandy loam with redoximorphic features. Soils in the wetland meet the hydric soil indicator for a Redox Dark Surface (F6).	
Hydrology	Wetland 25.08L occurs on a slope where a small tributary stream (Stream 25.0L) discharges onto a slope near the southbound lanes. Wetland 25.08L is a slope wetland, primarily fed by seeps. Hydrology indicators observed in the wetland include saturation at 3 inches and water table within 6 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 25.08L is rated Category III with a score of 7 for water quality, 5 for hydrologic functions, and 5 for habitat functions, scoring 17 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 25.08L has a moderate site potential to improve water quality because it has a slope between 2 and 5 percent, and has dense, uncut, herbaceous plants over more than 90 percent of the area. It has a moderate landscape potential to affect water quality because the wetland receives direct roadway runoff. It has a high value for water quality treatment because it discharges to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 25.08L has a moderate site potential to affect hydrologic functions because it contains more than 90 percent dense rigid vegetation. It has a low landscape potential because the upslope areas are mostly natural forest. It has an overall moderate hydrologic value because there are surface flooding issues downstream of the wetland.	
Habitat	Wetland 25.08L provides low habitat function due to two plant communities, two hydroperiods, low habitat interspersions, and one special habitat features. The wetland has moderate landscape potential because it abuts a large tract of natural forest habitat. The wetland has moderate habitat value because of the adjacent stream habitat.	
Buffer Condition	The eastern portion of the buffer is truncated by southbound I-405. Remaining vegetated buffer areas consist of Himalayan blackberries in the immediate surroundings of the wetland and mature forest at the outer edge of the buffer.	


Attachment B: Impacted Wetland Summary Tables

Table 16. Wetland 25.22L Summary

WETLAND 25.22L – INFORMATION SUMMARY		
Location	West of I-405 at MP 25.22, adjacent to North Creek Forest	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	100 feet
	Wetland Size in the Study Area	0.13 acres
	Cowardin Classification	PEM/PSS/PFO
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 25.22L-WET
	Upland Data Sheet (s)	SP 25.22L-UP
	Flag color	Pink
Dominant Vegetation	Wetland 25.22L is a palustrine emergent and scrub-shrub wetland that occurs on a slope and at the base of a slope. The wetland is dominated by Himalayan blackberry, salmonberry and reed canarygrass.	
Soils	Soils in the wetland consist of 10 inches of dark grayish brown (10YR 3/2) sandy loam over a 10-inch layer of gray (2.5Y 5/1) sandy loam with redoximorphic features. Soils in the wetland meet the hydric soil indicator for a Depleted Matrix (F3).	
Hydrology	Wetland 25.22L is primarily fed by seep and high groundwater conditions. Hydrology indicators observed in the wetland include saturation at 10 inches and a water table at 12 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 25.22L is rated Category III with a score of 7 for water quality, 6 for hydrologic functions, and 6 for habitat functions, scoring 19 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 25.22L has a moderate site potential to improve water quality because it contains an intermittently flowing stream, has persistent vegetation that covers more than 50 percent of its area, and is seasonally ponded for over 25 percent of its area. It has moderate landscape potential because it receives stormwater runoff from the adjacent roadway. It has high value for water quality improvements because it discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 25.22L has a low site potential to affect hydrologic functions because it impedes very little water, and the area has an intermittently flowing outlet. It has a high landscape potential because it receives stormwater and because it occurs within an urban landscape. It has a moderate value for hydrologic support functions because downstream areas are prone to flooding.	
Habitat	Wetland 25.22L has moderate site potential for habitat functions because it provides some structural habitat diversity and hydrologic regimes as well as special habitat features such as snags and downed woody debris. The wetland has moderate landscape potential because there are some adjacent available habitat areas. The overall habitat value is moderate because of the riparian habitat provided in the nearby stream.	


Attachment B: Impacted Wetland Summary Tables

Table 17. Wetland 25.34L Summary

WETLAND 25.34L – INFORMATION SUMMARY		
Location	West of I-405 at MP 25.34 adjacent to Stream 66 inside North Creek Forest	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.02 acres
	Cowardin Classification	PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 25.34L-WET
	Upland Data Sheet (s)	SP 25.34L-UP
	Flag color	Pink
Dominant Vegetation	Wetland 25.34L is a palustrine scrub-shrub slope wetland that is dominated by vine maple and salmonberry with a dense groundcover of piggyback plant. It occurs adjacent to the left bank of Stream 66.	
Soils	Soils in the wetland consist of a 4-inch layer of very dark brown (10YR 2/1) sandy loam over a 10-inch thick sapric organic layer. A very dark greenish gray (G1 3/10Y) sandy clay loam was observed below 14 inches. Soils in the wetland meet the hydric soil indicator for a Histic Epipedon (A2).	
Hydrology	Wetland 25.34L is a slope wetland, primarily fed by seeps. The adjacent Stream 66 does not appear to flood the wetland. Wetland hydrology indicators observed include saturation at 2 inches and a water table at 14 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology	
Rationale for Local Rating	Wetland 25.34L is rated Category III with a score of 7 for water quality, 5 for hydrologic functions, and 5 for habitat functions, scoring 17 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 25.34L has moderate site potential for water quality because it has a moderate slope of 2 to 5 percent and has dense, uncut, herbaceous plants over more than 95 percent the area, but lacks clay or organic soil. It has a moderate landscape potential because more than 10 percent of the upstream basin consists of land uses that generate pollutants. It has an overall high value for water quality because it eventually discharges to a stream on the 303 (d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 25.34L has moderate site potential to attenuate stormwater flows due to dense scrub-shrub cover. It has a low landscape potential because less than 25 percent of the upslope areas generate runoff. It has a moderate value for hydrologic support because flooding problems occur downstream of the wetland.	
Habitat	Wetland 25.34L provides low habitat function due to limited vegetation communities, small size, two hydroperiods, low interspersions of habitat types, and two special habitat features (large woody debris, high percentage of native plants). The wetland has moderate landscape potential because there are adjacent available habitat areas. The habitat value score is also moderate because there are adjacent in-stream and riparian habitats.	
Buffer Condition	The buffer adjoining Wetland 25.34L is forested and dominated by Douglas fir, bigleaf maple, red alder, vine maple, and swordfern.	


Attachment B: Impacted Wetland Summary Tables

Table 18. Wetland 25.66L Summary

WETLAND 25.66L – INFORMATION SUMMARY		
Location	West of I-405 at MP 25.66	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BCM 13.13.020)	Category IV
	City of Bothell Buffer Width	50 feet
	Wetland Size in the Study Area	0.04 acres
	Cowardin Classification	PEM/PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 25.66L-WET
	Upland Data Sheet (s)	SP 25.66L-UP
	Flag color	Pink
Dominant Vegetation	Wetland 25.66L is a palustrine emergent and scrub/shrub slope wetland that is dominated by trailing blackberry, Himalayan blackberry, and reed canarygrass.	
Soils	Soils in the wetland consist of a 4-inch layer of dark grayish brown (10YR 3/2) sandy loam over a 14-inch thick dark greenish gray (G1 4/5GY) sandy clay loam with prominent and distinct redoximorphic features. Soils in the wetland meet the hydric soil indicator for a Loamy Gleyed Matrix (F2).	
Hydrology	Wetland 25.66L is a slope wetland, primarily fed by seeps. Wetland hydrology indicators observed include saturation at 7 inches and a water table at 10 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology	
Rationale for Local Rating	Wetland 25.66L is rated Category IV with a score of 6 for water quality, 5 for hydrologic functions, and 3 for habitat functions, scoring 14 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 25.66L has a low site potential for water quality because it has a greater than 5 percent slope and has dense, uncut, herbaceous plants over more than 50 percent the area, but lacks clay or organic soil. It has a moderate landscape potential because more than 10 percent of the upstream basin consists of land uses that generate pollutants. It has an overall high value for water quality because it eventually discharges to a stream on the 303 (d) list within a mile and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 25.66L has a low site potential to attenuate stormwater flows because it does not have dense rigid plants growing over 90 percent of the area. It has a moderate landscape potential because more than 25 percent of the upslope areas generate runoff. It has a moderate value for hydrologic support because flooding problems occur downstream of the wetland.	
Habitat	Wetland 25.66L provides low habitat function due to limited vegetation structures, small size, two hydroperiods, low interspersions of habitat types, and one special habitat features (standing snags). The wetland has low landscape potential because less than 20 percent of adjacent lands have accessible habitat areas. The wetland has low habitat value because there are no adjacent priority habitat areas.	
Buffer Condition	The eastern portion of Wetland 25.66L is truncated by southbound I-405. The remaining adjoining Wetland 25.66L consists of red alder, Himalayan blackberry, trailing blackberry, and swordfern.	


Attachment B: Impacted Wetland Summary Tables

Table 19. Wetland 26.10L Summary

WETLAND 26.10L – INFORMATION SUMMARY		
Location	West of I-405 at MP 26.10, north of 232nd Street SE	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category IV
	City of Bothell Rating (BCM 13.13.020)	Category IV
	City of Bothell Buffer Width	50 feet
	Wetland Size in the Study Area	0.12 acres
	Cowardin Classification	PEM/PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 26.10L-WET
	Upland Data Sheet (s)	SP 26.10L-UP
	Flag color	Pink
Dominant Vegetation	Wetland 26.10L is a palustrine emergent and scrub-shrub slope wetland that is dominated by Himalayan blackberry and reed canarygrass. Hardhack and slough sedge (<i>Carex obnupta</i>) are also present in the wetland.	
Soils	Soils in the wetland consist of a 6-inch layer of black (10YR 2/1) silt loam over a 4-inch thick very dark grayish brown (10YR 3/1) sandy loam underlain by an 8-inch thick dark gray (10YR 4/1) sandy loam with redoximorphic features. Soils in the wetland meet the hydric soil indicator for a Depleted Matrix (F3)	
Hydrology	Wetland 26.10L is a slope wetland, primarily fed by seeps. Wetland hydrology indicators observed include surface saturation and a water table at 14 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology	
Rationale for Local Rating	Wetland 26.10L is rated Category IV with a score of 6 for water quality, 5 for hydrologic functions, and 3 for habitat functions, scoring 14 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.10L has low site potential for water quality because it has a moderate slope of 2 to 5 percent and has dense, uncut, herbaceous plants over more than 50 percent the area, but lacks clay or organic soil. It has a moderate landscape potential because more than 10 percent of the upstream basin consists of land uses that generate pollutants. It has a high value for water quality because it eventually discharges to a stream on the 303 (d) list within 1 mile and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.10L has low potential to attenuate stormwater flows due to sparse scrub-shrub cover. It has a moderate landscape potential because more than 25 percent of the upslope areas generate runoff. It has an overall moderate value for hydrologic support because flooding problems occur downstream of the wetland.	
Habitat	Wetland 26.10L provides low habitat function due to limited vegetation structures, its small size, two hydroperiods, low interspersions of habitat types, and no special habitat features. The wetland has low landscape potential and habitat value because there are very few adjacent available habitat areas or priority habitats in the area.	
Buffer Condition	The eastern portion of Wetland 26.10L is truncated by southbound I-405. The remaining adjoining Wetland 26.10L consists of western red cedar, red alder, trailing blackberry, and swordfern.	


Attachment B: Impacted Wetland Summary Tables

Table 20. Wetland 26.13R Summary

WETLAND 26.13R – INFORMATION SUMMARY		
Location	East of I-405 at MP 26.13, south of 228th Street SE, west of Fitzgerald Road	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category II
	City of Bothell Rating (BCM 13.13.020)	Category II
	City of Bothell Buffer Width	165 feet
	Wetland Size in the Study Area	0.43 acres
	Cowardin Classification	PFO/PSS
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 26.13R-WET
	Upland Data Sheet (s)	SP 26.13R-UP, SP 26.13R-UP2
	Flag color	Pink
Dominant Vegetation	Wetland 26.13R is a palustrine forested and palustrine scrub-shrub wetland. Dominant vegetation includes western red cedar, red alder, black cottonwood, vine maple, red-osier dogwood, salmonberry, and lady fern.	
Soils	Soils in the wetland consist of 6 inches of very dark brown (10YR 2/2) sandy loam over 10 inches of dark greenish gray (10GY 4/1) loamy sand over 2 inches of dark greenish gray (10GY 4/1) sandy clay loam with redoximorphic features. Soils in the wetland meet the hydric soil indicator for a Sandy Gleyed Matrix (S4). In addition, small pockets of organic soils (histosols) are present in the wetland.	
Hydrology	Wetland 26.13R is a depressional wetland. The primary source of hydrology is a high groundwater table. Observed hydrology indicators include saturation to the surface and a water table at 7 inches. Surface water was also observed in the wetland.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.13R is rated Category II with a score of 7 for water quality, 7 for hydrologic functions, and 6 for habitat functions, scoring 20 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.13R has moderate site potential to improve water quality because it is a depression with a slightly constricted, permanently flowing outlet; has persistent ungrazed plants over 95 percent of the area; and has seasonal ponding over less than one quarter of the wetland. The wetland receives stormwater discharges and the area within 150 feet of the wetland generates pollutants; therefore, the landscape provides moderate potential for water quality functions. The wetland has high value for water quality improvements because it discharges to an impaired water downstream of the study area and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.13R has moderate potential to attenuate stormwater flows because it is a depressional wetland with a slightly constricted, permanently flowing outlet; is mostly flat but with small depressions; and has a basin area that is less than 10 times the size of the unit. Surrounding land uses contribute to high landscape potential for hydrologic function support, including stormwater discharges, roadway, and other paved surfaces within 150 feet of the wetland, and intensive land use in the contributing basin. The wetland has moderate value for hydrologic function because flooding problems are an issue in a basin downgradient of the wetland.	
Habitat	Wetland 26.13R has moderate habitat function due to three vegetation structures, two hydroperiods, moderate interspersions of habitat types, and two special habitat features (large woody debris, standing snags). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and high habitat value due to proximity to priority habitats.	
Buffer Condition	Wetland 26.13R is bounded to the west by northbound I-405, to the south by multifamily residential development, to the north by additional residential and commercial development, and to the east by residential development. Small areas of forested buffer are present between the wetland boundary and the development to the south.	


Attachment B: Impacted Wetland Summary Tables

Table 21. Wetland 26.15L Summary

WETLAND 26.15L – INFORMATION SUMMARY		
Location	West of I-405 at MP 26.15, north of 21st Avenue SE cul de sac	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.11 acres
	Cowardin Classification	PFO/PSS
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 26.15L-WET
	Upland Data Sheet (s)	SP 26.15L-UP
Flag color	Pink	
Dominant Vegetation	Wetland 26.15L is a palustrine forested and palustrine scrub-shrub wetland. Dominant vegetation includes western red cedar, red alder, salmonberry, Himalayan blackberry and black twinberry (<i>Lonicera involucrata</i>).	
Soils	Soils in the wetland consist of 4 inches of very dark grayish brown (10YR 3/2) sandy loam over 5 inches of grayish brown (10YR 4/3) sandy loam underlain by 9 inches of very dark gray (10YR 3/1) sandy loam. There was a strong hydrogen sulfide odor at 6 inches below the soil surface. Soils in the wetland meet hydric soil indicator for a Hydrogen Sulfide (A4).	
Hydrology	Wetland 26.15L is a depressional wetland. The primary source of hydrology is a high groundwater table and runoff from the adjacent neighborhood and roadway. Observed hydrology indicators include saturation to the surface and a water table at 12 inches. Surface water ponding up to 12-inches deep was also observed in the wetland.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.15L is rated Category III with a score of 7 for water quality, 7 for hydrologic functions, and 3 for habitat functions, scoring 17 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.15L has moderate site potential to improve water quality because it is a depression with a with an intermittently flowing ditch, has persistent ungrazed plants less than 50 percent of the area, and has seasonal ponding over more than 50 percent of the wetland. The wetland receives stormwater discharges and the area within 150 feet of the wetland generates pollutants; therefore, the landscape provides moderate potential for water quality functions. The wetland has a high value for water quality improvements because it discharges directly to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.15L has moderate site potential to attenuate stormwater flows because it is a depressional wetland with a with an intermittently flowing ditch and has a basin area that is less than 10 times the size of the unit. Surrounding land uses contribute to high landscape potential for hydrologic function support, including stormwater discharges, roadway, and other paved surfaces within 150 feet of the wetland, and intensive land use in the contributing basin. The wetland has moderate value for hydrologic function because flooding problems are an issue in a basin downgradient of the wetland.	
Habitat	Wetland 26.15L has a low site potential for habitat support because it has two vegetation structures, two hydroperiods, low interspersions of habitat types, and two special habitat features (large woody debris, standing snags). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats. It also has a low habitat value for wildlife because it occurs within a highly urbanized landscape.	
Buffer Condition	The buffer adjoining Wetland 26.15L is less than 75 feet wide as the wetland is bounded by southbound I-405 to the east and residential areas to the west. The vegetated buffer consists of western red cedar, Douglas fir, vine maple, salmonberry, and swordfern.	


Attachment B: Impacted Wetland Summary Tables

Table 22. Wetland 26.35R Summary

WETLAND 26.35R – INFORMATION SUMMARY		
Location	East of I-405 at MP 26.35R along North Fork and South Fork Perry Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category II
	City of Bothell Rating (BCM 13.13.020)	Category II
	City of Bothell Buffer Width	125 feet
	Wetland Size in the Study Area	1.23 acres
	Cowardin Classification	PSS/PFO
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 26.35R-WET
	Upland Data Sheet (s)	SP 26.35R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 26.35R is a palustrine forested and palustrine scrub-shrub wetland. Dominant vegetation includes red alder, Himalayan blackberry, red-osier dogwood, salmonberry, and giant horsetail.	
Soils	Soils in the wetland consist of 9 inches of very dark brown (10YR 2/2) silt loam over 5 inches of very dark grayish brown (10YR 3/2) sandy loam with redoximorphic features over 4 inches of dark gray (2.5Y 4/1) loamy sand with redoximorphic features. Soils in the sampled portion of the wetland are problematic hydric soils, with the depleted matrix starting too deep to meet standard indicators. Given the presence of wetland hydrology and hydrophytic vegetation, hydric soils are assumed.	
Hydrology	Wetland 26.35R is a depressional wetland associated with Perry Creek. The primary source of hydrology is a high groundwater table. Observed hydrology indicators include saturation, a high water table, and pockets of surface ponding. Saturation was observed at 8 inches below the surface.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.35R is rated Category II with a score of 7 for water quality, 7 for hydrologic functions, and 6 for habitat functions, scoring 20 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.35R has moderate site potential to improve water quality because it is a depression with a slightly constricted, permanently flowing outlet; has persistent ungrazed plants over 95 percent of the area; and has seasonal ponding over more than one quarter of the wetland. The wetland has moderate potential for water quality functions because it receives stormwater discharges and the area within 150 feet of the wetland generates pollutants. The wetland has high value for water quality improvements because it eventually discharges to a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.35R has moderate site potential to attenuate stormwater flows because it is a depressional wetland with a slightly constricted, permanently flowing outlet; has marks of ponding between 0.5 and 2 feet; and has a basin area that is less than 10 times the size of the unit. Surrounding land uses contribute to high landscape potential for hydrologic function support, including stormwater discharges, roadway, and other paved surfaces within 150 feet of the wetland, and intensive land use in the contributing basin. The wetland has moderate value for hydrologic function because flooding problems are an issue in a basin downgradient of the wetland.	
Habitat	Wetland 26.35R has moderate habitat function due to three vegetation structures, four hydroperiods, moderate interspersions of habitat types, and two special habitat features (large woody debris, standing snags). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and high habitat value due to proximity to priority habitats.	
Buffer Condition	Wetland 26.35R is bounded to the south by 228th Street SE and west by northbound I-405, and to the north and east by residential development. The wetland has limited vegetated buffer consisting of bigleaf maple and Himalayan blackberry.	


Attachment B: Impacted Wetland Summary Tables

Table 23. Wetland 26.50R Summary

WETLAND 26.50R – INFORMATION SUMMARY		
Location	East of I-405 at MP 26.50R, south of Canyon Park Park and Ride	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.04 acres
	Cowardin Classification	PFO
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 26.50R-WET
	Upland Data Sheet (s)	SP 26.50R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 26.50R is a palustrine forested wetland. Dominant vegetation includes red alder, Himalayan blackberry, salmonberry, skunk cabbage and giant horsetail.	
Soils	Soils in the wetland consist of 6 inches of organic soil over 10 inches of black (10YR 2/1) mucky silt loam over 2 inches dark gray (Gley 1 4/N) sand. Soils in the wetland meet hydric soil indicators for a Hydrogen Sulfide (A4) and a Loamy Mucky Mineral (F1).	
Hydrology	Wetland 26.50R is a depressional wetland located in a similar landscape position as Wetland 26.13R. Prior to development in the area, both wetlands were likely part of a larger wetland complex. The primary source of hydrology is a high groundwater table. Observed hydrology indicators include saturation to the surface, and a high water table at 3 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.50R is rated Category III with a score of 8 for water quality, 7 for hydrologic functions, and 4 for habitat functions, scoring 19 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.50R has high site potential to improve water quality because it is a depression with no outlet, has persistent ungrazed plants over 95 percent of the area, and has seasonal ponding over more than one half of the wetland. The wetland receives stormwater discharges and the area within 150 feet of the wetland generates pollutants; therefore, the landscape provides moderate potential for water quality functions. The wetland has high value for water quality improvements because though it does not discharge immediately to an impaired water, it is less than a mile from a stream on the 303(d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.50R has moderate site potential to attenuate stormwater flows because it is a depressional wetland with no outlet, has marks of ponding less than 0.5 feet, and has a basin area that is between 10 and 100 times the size of the unit. Surrounding land uses contribute to high landscape potential for hydrologic function support, including stormwater discharges, roadway, and residences within 150 feet of the wetland, and intensive land use in the contributing basin. The wetland has low value for hydrologic function because groundwater flooding problems are an issue in the sub-basin.	
Habitat	Wetland 26.50R has low habitat function due to two vegetation structures, one hydroperiod, no interspersions of habitat types, and two special habitat features (large woody debris, standing snags). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and moderate habitat value due to proximity to priority habitats.	
Buffer Condition	Wetland 26.50R is bounded to the west by northbound I-405 and to the east by residential development. As a result, the wetland has limited vegetated buffer consisting of western red cedar, bigleaf maple, salmonberry, Indian plum, and Himalayan blackberry.	


Attachment B: Impacted Wetland Summary Tables

Table 24. Wetland 26.55L Summary

WETLAND 26.55L – INFORMATION SUMMARY		
Location	West of I-405 at MP 26.55, north of North Fork Perry Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.19 acres
	Cowardin Classification	PFO/PEM
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 26.55L-WET
	Upland Data Sheet (s)	SP 26.55L-UP
	Flag color	Pink
Dominant Vegetation	Wetland 26.55L is a palustrine forested and emergent wetland. Dominant vegetation for the emergent community includes soft rush and common cattail. The forested portion of the wetland occurs outside of the study area but was reviewed in the field, and the observed vegetation in the forested community includes red alder and salmonberry.	
Soils	Soils in the wetland consist of 6 inches of very dark grayish brown (10YR 3/2) silt loam over 12 inches of dark greenish gray (G1 4/5GY) sandy loam with redoximorphic features. Soils in the wetland meet the hydric soil indicator for a Loamy Gleyed Matrix (F2).	
Hydrology	Wetland 26.55L is a depressional wetland located along the roadway and a plateau adjacent to North Fork Perry Creek. North Fork Perry Creek does not appear to flood the wetland. The primary source of hydrology is a high groundwater table and runoff from the adjacent roadway. Observed hydrology indicators include saturation to the surface and a high water table at 10 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.55L is rated Category III with a score of 7 for water quality, 6 for hydrologic functions, and 4 for habitat functions, scoring 17 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.55L has a moderate site potential to improve water quality because it is a depression with a permanently flowing outlet, has persistent ungrazed plants over 95 percent of the area, and has seasonal ponding over less than one quarter of the wetland. The wetland receives stormwater discharges and the area within 150 feet of the wetland generates pollutants; therefore, the landscape provides moderate potential for water quality functions. The wetland has high value for water quality improvements because it eventually discharges to an impaired water within 1 mile from the wetland that is in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.55L has a moderate site potential to attenuate stormwater flows because it has a permanently flowing outlet and has a basin area that is between 10 and 100 times the size of the unit. Surrounding land uses contribute to high landscape potential for hydrologic function support, including stormwater discharges, roadway and commercial areas within 150 feet of the wetland. The wetland has moderate value for hydrologic function because surface flooding problems are an issue in the sub-basin.	
Habitat	Wetland 26.55L has low habitat function due to two vegetation structures, three hydroperiods, low interspersion of habitat types, and one special habitat features (large woody debris). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and moderate habitat value due to proximity to North Fork Perry Creek.	
Buffer Condition	Wetland 26.50R is bounded to the east by southbound I-405, and to the south and west by commercial development. As a result, vegetated buffer is less than 100 feet wide. The vegetated portion of the wetland buffer is dominated by black cottonwood, red alder, Himalayan blackberry, and Scotch broom.	


Attachment B: Impacted Wetland Summary Tables

Table 25. Wetland 26.70R Summary

WETLAND 26.70R – INFORMATION SUMMARY		
Location	East of northbound I-405 off-ramp to SR 527 along Queensborough Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category II
	City of Bothell Rating (BCM 13.13.020)	Category II
	City of Bothell Buffer Width	125 feet
	Wetland Size in the Study Area	0.74 acres
	Cowardin Classification	PFO
	HGM Classification	Depressional
	Wetland Data Sheet(s)	SP 26.70R-WET
	Upland Data Sheet (s)	SP 26.70R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 26.70R is a palustrine forested wetland. Dominant vegetation includes red alder, Pacific (<i>Salix lasiandra</i>) willow, Himalayan blackberry, and salmonberry.	
Soils	Soils in the wetland consist of 6 inches of very dark grayish brown (10YR 3/2) sandy loam over 6 inches of dark gray (10YR 4/1) loamy sand with redoximorphic features over 6 inches of very dark gray (10YR 3/1) loamy sand. Soils in the wetland meet the hydric soil indicator for a Depleted Matrix (F3).	
Hydrology	Wetland 26.70R is a depressional wetland associated with Queensborough Creek. Primary hydrology inputs for the wetland are high groundwater. Observed hydrology indicators include saturation at 7 inches and water table at 11 inches. Surface water was also observed elsewhere in the wetland.	
Rationale for Delineation	The presence of all three wetland criteria was met. Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.70R is rated Category II with a score of 7 for water quality, 7 for hydrologic functions, and 6 for habitat functions, rating 20 on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.70R has moderate site potential to improve water quality because it is a depression with a slightly constricted outlet, has persistent ungrazed plants over 95 percent of the area, and has seasonal ponding over more than one quarter of the wetland. The wetland receives stormwater discharges and the area within 150 feet of the wetland generates pollutants; therefore, the landscape provides moderate potential for water quality functions. The wetland has high potential for water quality improvements because it discharges immediately to an impaired water and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.70R has moderate site potential to attenuate stormwater flows because it is a depressional wetland with a slightly constricted outlet, has marks of ponding between 0.5 and 2 feet, and has a basin area that is less than 10 times the size of the unit. Surrounding land uses contribute to high landscape potential for hydrologic function support, including stormwater discharges, roadway, and parking lots within 150 feet of the wetland, and intensive land use in the contributing basin. The wetland has moderate value for hydrologic function because surface flooding problems are an issue in a sub-basin further down gradient.	
Habitat	Wetland 26.70R has low habitat function due to two vegetation structures, three hydroperiods, no interspersion of habitat types, and three special habitat features (large woody debris, standing snags, undercut banks). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and high habitat value due to proximity to priority habitats.	
Buffer Condition	Wetland 26.70R generally has 30 to 50 feet of well-vegetated forested buffer on all sides but lacks any buffer beyond that distance. The wetland is bounded by the I-405 off-ramp to SR 527 to the west, the park and ride to the south and east, and business parks to the north and east. Vegetation observed in the buffer includes red alder, grand fir (<i>Abies grandis</i>), and Himalayan blackberry.	


Attachment B: Impacted Wetland Summary Tables

Table 26. Wetland 26.77R Summary

WETLAND 26.77R– INFORMATION SUMMARY		
Location	East of northbound I-405 on-ramp from SR 527, located along Queensborough Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.02 acres
	Cowardin Classification	PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 26.77R-WET
	Upland Data Sheet (s)	SP 26.77R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 26.77R is a palustrine scrub-shrub wetland dominated by salmonberry and Indian plum, with an understory of lady fern and giant horsetail.	
Soils	Soils in the wetland consist of 5 inches of black (10YR 2/1) sandy loam over 4 inches of black (10YR 2/1) sandy loam with redoximorphic features over 9 inches of dark gray (10YR 4/1) loamy sand with redoximorphic features. Soils in the wetland meet the hydric soil indicators for a Depleted Matrix (F3) and a Redox Dark Surface (F6).	
Hydrology	Wetland 26.77R is a slope wetland located on a bench above Queensborough Creek. The primary source of hydrology is groundwater discharge from seeps. Observed hydrology indicators include saturation to the surface.	
Rationale for Delineation	The presence of all three wetland criteria was met Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.77R is rated Category III with a score of 6 for water quality, 5 for hydrologic functions, and 5 for habitat functions, scoring 16 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.77R has low site potential to improve water quality because it has a slope between 1 and 2 percent and has dense, uncut, herbaceous plants over more than half of the area, but lacks clay or organic soil. Areas within 150 feet on the uphill side of the wetland generate pollutants, resulting in moderate potential to support water quality functions. The wetland has high potential for water quality improvements because it discharges directly to a stream on the 303 (d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.77R has low site potential to attenuate stormwater flows due to lack of dense, uncut rigid plant cover. Surrounding land uses contribute to moderate landscape potential for hydrologic function support. The wetland has moderate value for hydrologic function because flooding problems are an issue further down gradient in the basin.	
Habitat	Wetland 26.77R has low habitat function due to one vegetation structure, two hydroperiods, no interspersion of habitat types, and three special habitat features (large woody debris, undercut banks, invasive plants cover less than 25 percent). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and high habitat value due to proximity to priority habitats.	
Buffer Condition	Wetland 26.77R has intact forested buffer; however, the wetland buffer is truncated by SR 527 and the I-405 on-ramp, and parking lots of an adjacent business complex. As a result, the vegetation portion of the wetland buffer is less than 100 feet wide. Vegetation observed in the adjacent buffer includes bigleaf maple, Indian plum, and swordfern.	


Attachment B: Impacted Wetland Summary Tables

Table 27. Wetland 26.78R Summary

WETLAND 26.78R – INFORMATION SUMMARY		
Location	East of northbound I-405 on-ramp from SR 527, located along Queensborough Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.04 acres
	Cowardin Classification	PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 26.78R-WET
	Upland Data Sheet (s)	SP 26.78R-UP
Flag color	Pink	
Dominant Vegetation	Wetland 26.78R is a palustrine scrub-shrub wetland dominated by red-osier dogwood, salmonberry, and vine maple. Understory species include Pacific water parsley (<i>Oenanthe sarmentosa</i>) and piggyback plant.	
Soils	Soils in the wetland consist of 18 inches of very dark brown (10YR 2/2) sandy loam with redoximorphic features. Soils in the wetland meet hydric soil indicator F6, Redox Dark Surface.	
Hydrology	Wetland 26.78R is a slope wetland located on a bench above Queensborough Creek. The primary source of hydrology is from groundwater discharge from seeps. Observed hydrology indicators include saturation to the surface and a high water table.	
Rationale for Delineation	The presence of all three wetland criteria was met Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.78R is rated Category III with a score of 6 for water quality, 5 for hydrologic functions, and 5 for habitat functions, scoring 16 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.78R has low site potential to improve water quality because it has a slope between 2 and 5 percent and has dense, uncut, woody plants over more than half of the area, but lacks clay or organic soil. Areas within 150 feet of the uphill side of the wetland generate pollutants, resulting in moderate potential to support water quality functions. The wetland has high potential for water quality improvements because it discharges directly to a stream on the 303 (d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.78R has low site potential to attenuate stormwater flows due to lack of dense, uncut rigid plant cover. Surrounding land uses contribute to moderate landscape potential for hydrologic function support. The wetland has moderate value for hydrologic function because flooding problems are an issue further down gradient in the basin.	
Habitat	Wetland 26.78R has low habitat function due to one vegetation structure, two hydroperiods, no interspersion of habitat types, and three special habitat features (large woody debris, undercut banks, invasive plants cover less than 25 percent). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and high habitat value due to proximity to priority habitats.	
Buffer Condition	Wetland 26.78R has intact forested buffer; however, the wetland buffer is truncated by SR 527 and the I-405 on-ramp, and parking lots of an adjacent business complex. As a result, the vegetation portion of the wetland buffer is less than 100 feet wide. Vegetation observed in the adjacent buffer includes bigleaf maple, Indian plum, and swordfern.	

Attachment B: Impacted Wetland Summary Tables

Table 28. Wetland 26.79R Summary


WETLAND 26.79R – INFORMATION SUMMARY		
Location	East of northbound I-405 on-ramp from SR 527, located along Queensborough Creek	
	Local Jurisdiction	City of Bothell
	WRIA	8
	Ecology Rating (Hruby 2004)	Category III
	City of Bothell Rating (BCM 13.13.020)	Category III
	City of Bothell Buffer Width	75 feet
	Wetland Size in the Study Area	0.02 acres
	Cowardin Classification	PSS
	HGM Classification	Slope
	Wetland Data Sheet(s)	SP 26.79R-WET
	Upland Data Sheet (s)	SP 26.79R-UP
	Flag color	Pink
Dominant Vegetation	Wetland 26.79R is a palustrine scrub-shrub wetland dominated by red-osier dogwood and vine maple.	
Soils	Soils in the wetland consist of 8 inches of dark grayish brown (2.5Y 4/2) sandy loam over 7 inches of dark grayish brown (2.5Y 4/2) sandy loam with redoximorphic features over 3 inches of dark gray (10YR 4/1) sand with redoximorphic features and significant gravel. Soils in the wetland meet the hydric soil indicator for a Depleted Matrix (F3).	
Hydrology	Wetland 26.79R is a slope wetland located on a bench above Queensborough Creek. The primary source of hydrology is from groundwater discharge from seeps. Observed hydrology indicators include saturation at 8 inches.	
Rationale for Delineation	The presence of all three wetland criteria was met Wetlands were distinguished from uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.	
Rationale for Local Rating	Wetland 26.79R is rated Category III with a score of 6 for water quality, 5 for hydrologic functions, and 5 for habitat functions, scoring 16 points on the wetland rating form.	
Wetland Functions Summary		
Water Quality	Wetland 26.79R has low potential to improve water quality because it has a slope between 1 and 2 percent and has dense, uncut, herbaceous plants over more than one quarter of the area, but lacks clay or organic soil. Areas within 150 feet of the uphill side of the wetland generate pollutants, resulting in moderate potential to support water quality functions. The wetland has a high value for water quality improvements because it discharges directly to a stream on the 303 (d) list and is located in a basin with resources on the 303(d) list and a TMDL.	
Hydrologic	Wetland 26.79R has low site potential to attenuate stormwater flows due to lack of dense, uncut rigid plant cover. Surrounding land uses contribute to moderate landscape potential for hydrologic function support. The wetland has moderate value for hydrologic function because flooding problems are an issue further down gradient in the basin.	
Habitat	Wetland 26.79R has low habitat function due to one vegetation structure, two hydroperiods, no interspersions of habitat types, and three special habitat features (large woody debris, undercut banks, invasive plants cover less than 25 percent). The wetland has low landscape potential due to poor connectivity to accessible and undisturbed habitats and high habitat value due to proximity to priority habitats.	
Buffer Condition	Wetland 26.79R has intact forested buffer; however, the wetland buffer is truncated by SR 527 and the I-405 on-ramp, and parking lots of an adjacent business complex. As a result, the vegetation portion of the wetland buffer is less than 100 feet wide. Vegetation observed in the adjacent buffer includes bigleaf maple, Indian plum, and swordfern.	

Attachment C

Impacted Stream Summary Tables


Attachment C: Impacted Stream Summary Tables

Table 1. Stream Information Summary—Sammamish River

STREAM INFORMATION SUMMARY																	
	<table border="1"> <tr> <td>Stream Name</td> <td>Sammamish River</td> </tr> <tr> <td>WRIA</td> <td>8</td> </tr> <tr> <td>WA Stream Catalog #</td> <td>08-0057</td> </tr> <tr> <td>Local Jurisdiction</td> <td>City of Bothell</td> </tr> <tr> <td>DNR Stream Type</td> <td>Type S</td> </tr> <tr> <td>Local Stream Rating</td> <td>Type S</td> </tr> <tr> <td>Buffer Width</td> <td>100 ft.</td> </tr> <tr> <td>Documented Anadromous Fish Use</td> <td>Sockeye, coho, Chinook, winter steelhead, bull trout (SalmonScape)</td> </tr> </table>	Stream Name	Sammamish River	WRIA	8	WA Stream Catalog #	08-0057	Local Jurisdiction	City of Bothell	DNR Stream Type	Type S	Local Stream Rating	Type S	Buffer Width	100 ft.	Documented Anadromous Fish Use	Sockeye, coho, Chinook, winter steelhead, bull trout (SalmonScape)
	Stream Name	Sammamish River															
	WRIA	8															
	WA Stream Catalog #	08-0057															
	Local Jurisdiction	City of Bothell															
	DNR Stream Type	Type S															
	Local Stream Rating	Type S															
	Buffer Width	100 ft.															
Documented Anadromous Fish Use	Sockeye, coho, Chinook, winter steelhead, bull trout (SalmonScape)																
Location of Stream Relative to Project Corridor	The Sammamish River crosses I-405 at milepost (MP) 23.51 on the south side of the I-405/SR 522 interchange.																
Connectivity (where stream flows from/to)	The Sammamish River is approximately 13.8 miles long, originates at the north end of Lake Sammamish, and ends at the river mouth at the northern tip of Lake Washington (Williams et al. 1975).																
Riparian/Buffer Condition	Within the study area, the Sammamish River is mostly channelized with sparse vegetative cover along the river banks. The banks are mostly vegetated with Himalayan blackberries and reed canarygrass and lack canopy cover. However, some newly planted native vegetation and large woody debris have been installed along the banks as part of recent restoration efforts by King County and the City of Bothell.																


Attachment C: Impacted Stream Summary Tables

Table 2. Stream Information Summary—Par Creek

STREAM INFORMATION SUMMARY																	
	<table border="1"> <tr> <td>Stream Name</td> <td>Par Creek</td> </tr> <tr> <td>WRIA</td> <td>8</td> </tr> <tr> <td>WA Stream Catalog #</td> <td>N/A</td> </tr> <tr> <td>Local Jurisdiction</td> <td>City of Bothell</td> </tr> <tr> <td>DNR Stream Type</td> <td>Type F</td> </tr> <tr> <td>Local Stream Rating</td> <td>No Designation</td> </tr> <tr> <td>Buffer Width</td> <td>No Determination ft.</td> </tr> <tr> <td>Documented Anadromous Fish Use</td> <td>Winter steelhead, fall Chinook, sockeye, coho (SalmonScape)</td> </tr> </table>	Stream Name	Par Creek	WRIA	8	WA Stream Catalog #	N/A	Local Jurisdiction	City of Bothell	DNR Stream Type	Type F	Local Stream Rating	No Designation	Buffer Width	No Determination ft.	Documented Anadromous Fish Use	Winter steelhead, fall Chinook, sockeye, coho (SalmonScape)
	Stream Name	Par Creek															
	WRIA	8															
	WA Stream Catalog #	N/A															
	Local Jurisdiction	City of Bothell															
	DNR Stream Type	Type F															
	Local Stream Rating	No Designation															
Buffer Width	No Determination ft.																
Documented Anadromous Fish Use	Winter steelhead, fall Chinook, sockeye, coho (SalmonScape)																
Location of Stream Relative to Project Corridor	Par Creek flows north to south, crosses SR 522 via a 60-inch concrete culvert at MP 11.31, and enters the Sammamish River just east of the I-405/SR 522 interchange.																
Connectivity (where stream flows from/to)	Par Creek originates from a pond in a business park located approximately 5,000 feet north of the SR 522 crossing. The stream is immediately conveyed under NE 195th Street to the south and outlets to a pond/wetland area east of the Brightwater Influent Pump Station. The stream then flows south at a very low gradient and is channelized between business developments and park areas. Within 1,000 feet of SR 522, the stream enters an undeveloped area west of a Home Depot store. At the southern end of this undeveloped area, the channel crosses south beneath the roadway in a 60-inch diameter precast concrete culvert. Downstream of the crossing, the stream continues for approximately 225 feet, where it is conveyed through a 40-foot long, 60-inch diameter corrugated steel pipe. A second 60-inch diameter precast concrete culvert, approximately 40 feet in length, is located under the Sammamish River Trail and discharges flows into the Sammamish River. The unnamed tributary (UNT) to Par Creek converges with Par Creek just upstream of the culvert under SR 522.																
Riparian/Buffer Condition	Riparian buffer is almost entirely Himalayan blackberry and reed canarygrass. The upstream of SR 522 has some overstory trees along the left bank (Douglas fir, red alder, bigleaf maple). Downstream of SR 522 there are a few cottonwoods upstream of the Sammamish River Trail. The channel is mostly unshaded, except where trees are located.																


Attachment C: Impacted Stream Summary Tables

Table 3. Stream Information Summary—Unnamed Tributary to Par Creek

STREAM INFORMATION SUMMARY																	
	<table border="1"> <tr> <td>Stream Name</td> <td>UNT to Par Creek</td> </tr> <tr> <td>WRIA</td> <td>8</td> </tr> <tr> <td>WA Stream Catalog #</td> <td>N/A</td> </tr> <tr> <td>Local Jurisdiction</td> <td>City of Bothell</td> </tr> <tr> <td>DNR Stream Type</td> <td>No Designation</td> </tr> <tr> <td>Local Stream Rating</td> <td>No Designation</td> </tr> <tr> <td>Buffer Width</td> <td>No Determination</td> </tr> <tr> <td>Documented Anadromous Fish Use</td> <td>Not shown in SalmonScape</td> </tr> </table>	Stream Name	UNT to Par Creek	WRIA	8	WA Stream Catalog #	N/A	Local Jurisdiction	City of Bothell	DNR Stream Type	No Designation	Local Stream Rating	No Designation	Buffer Width	No Determination	Documented Anadromous Fish Use	Not shown in SalmonScape
	Stream Name	UNT to Par Creek															
	WRIA	8															
	WA Stream Catalog #	N/A															
	Local Jurisdiction	City of Bothell															
	DNR Stream Type	No Designation															
	Local Stream Rating	No Designation															
	Buffer Width	No Determination															
Documented Anadromous Fish Use	Not shown in SalmonScape																
<p>Location of Stream Relative to Project Corridor</p>	<p>Unnamed tributary (UNT) to Par Creek flows north to south parallel to the ramp from westbound SR 522 to northbound I-405.</p>																
<p>Connectivity (where stream flows from/to)</p>	<p>The headwaters of UNT to Par Creek begin at the south end of Wetland 24.20R. The stream flows for approximately 1,500 feet, parallel to the ramp from westbound SR 522 to northbound I-405, between I-405 MP 23.95 and where the stream converges with Par Creek at SR 522 MP 11.20.</p>																
<p>Riparian/Buffer Condition</p>	<p>Riparian buffer is almost entirely Himalayan blackberry, reed canarygrass, and Douglas spiraea with some pacific willow present. The channel is vegetated with reed canarygrass. There is approximately 30 to 40 percent canopy cover along I-405 and approximately 5 to 10 percent canopy cover where UNT to Par Creek converges with Par Creek just north of SR 522.</p>																


Attachment C: Impacted Stream Summary Tables

Table 4. Stream Information Summary—Stream 25.0L

STREAM INFORMATION SUMMARY		
	Stream Name	Stream 25.0L
	WRIA	8
	WA Stream Catalog #	N/A
	Local Jurisdiction	City of Bothell
	DNR Stream Type	Type N
	Local Stream Rating	Type Ns
	Buffer Width	50 feet
	Documented Fish Use	Not shown in SalmonScape
Location of Stream Relative to Project Corridor	Stream 25.0L flows west to east and crosses I-405 at MP 25.00.	
Connectivity (where stream flows from/to)	<p>Stream 25.0L originates in the North Creek Forest, just west of I-405. The headwaters are located at the top of the ravine and the channel flows west to east in a steep forested ravine outside of WSDOT right of way. In the lower reaches of the ravine prior to entering WSDOT right of way, the stream transitions from its well-defined channel in a confined ravine to a poorly defined section of stream with multiple channels with no valley confinement. Within the right of way, the stream flows into and through a wetland for approximately 50 feet. The surface runoff from the wetland drains into a catch basin grate located at MP 25.55, which then crosses under I-405 at MP 25.00. Downstream of the I-405 crossing, the stream flows in a small open channel constructed halfway up the road prism for approximately 180 feet before entering into a City of Bothell stormwater conveyance system. According to the City of Bothell's stormwater GIS data, the drainage flows through a series of conveyance pipes for approximately 3,500 feet, bypasses North Creek, and discharges into a detention pond just north of NE 195th Street that feeds into Par Creek.</p>	
Riparian/Buffer Condition	<p>Upstream of the I-405 crossing, the stream flows through a mature forested ravine. The riparian buffer has a mature canopy that includes cottonwood, bigleaf maple, cedar, and Douglas fir, with approximately 100 percent canopy cover. The stream then flows into WSDOT right of way and a wetland that is dominated by reed canarygrass. The riparian buffer in the right of way includes red alder and Himalayan blackberry, with approximately 30 percent canopy cover. Downstream of the I-405 crossing, the riparian buffer is very narrow, approximately 10 feet on each side of the channel. Understory is dominated by reed canarygrass and Himalayan blackberry. The overstory includes red alder and Douglas fir, and canopy cover over the stream varies from 25 percent in some locations up to 100 percent.</p>	

Attachment C: Impacted Stream Summary Tables

Table 5. Stream Information Summary—Perry Creek


STREAM INFORMATION SUMMARY																	
	<table border="1"> <tr> <td>Stream Name</td> <td>Perry Creek</td> </tr> <tr> <td>WRIA</td> <td>8</td> </tr> <tr> <td>WA Stream Catalog #</td> <td>N/A</td> </tr> <tr> <td>Local Jurisdiction</td> <td>City of Bothell</td> </tr> <tr> <td>DNR Stream Type</td> <td>Type F</td> </tr> <tr> <td>Local Stream Rating</td> <td>No Designation</td> </tr> <tr> <td>Buffer Width</td> <td>No Determination</td> </tr> <tr> <td>Documented Fish Use</td> <td>Not shown in SalmonScape</td> </tr> </table>	Stream Name	Perry Creek	WRIA	8	WA Stream Catalog #	N/A	Local Jurisdiction	City of Bothell	DNR Stream Type	Type F	Local Stream Rating	No Designation	Buffer Width	No Determination	Documented Fish Use	Not shown in SalmonScape
	Stream Name	Perry Creek															
	WRIA	8															
	WA Stream Catalog #	N/A															
	Local Jurisdiction	City of Bothell															
	DNR Stream Type	Type F															
	Local Stream Rating	No Designation															
	Buffer Width	No Determination															
Documented Fish Use	Not shown in SalmonScape																
<p>Location of Stream Relative to Project Corridor</p>	<p>The South Fork of Perry Creek crosses 228th Street SE underneath of I-405 from west to east via an approximately 250-foot-long, 48-inch diameter culvert at MP 26.35. The North Fork of Perry Creek crosses I-405 from west to east via a 60-inch diameter culvert with baffles at MP 26.46. Both forks enter the mainstem of Perry Creek approximately 400 to 500 feet east of the WSDOT right of way.</p>																
<p>Connectivity (where stream flows from/to)</p>	<p>South Fork Perry Creek originates from a series of ponds located north of 242nd Street SE on the southbound side of I-405 in the City of Bothell. Downstream of the ponds, the stream flows north through a confined forested ravine for approximately 2,500 feet and then crosses 19th Avenue SE through two 24-inch diameter culverts. The channel opens up for approximately 100 feet before it crosses 228th Street SE under I-405. Downstream of the culvert crossing, South Fork Perry Creek flows north through a wetland for approximately 500 feet before it meets with North Fork Perry Creek.</p> <p>North Fork Perry Creek originates on the southbound side of I-405 and has three branches that originate at various locations within the basin from different sources, including wetlands and seasonal groundwater. The three branches converge before crossing under I-405 through a 60-inch diameter concrete culvert with baffles. The stream then flows about 400 feet through a large wetland complex before it is joined by South Fork Perry Creek to form the mainstem Perry Creek. A small side channel is also present along the left bank of North Fork Perry Creek. The channel starts approximately 150 feet downstream of the I-405 crossing and enters North Fork Perry Creek immediately upstream of where both forks meet. The channel is approximately 5 to 6 feet wide.</p> <p>North Fork and South Fork Perry Creek meet approximately 400 feet east of I-405, just west of 20th Avenue SE, to form the mainstem Perry Creek. The mainstem Perry Creek flows for approximately 100 feet before crossing under 20th Avenue SE via a 48-inch diameter culvert and discharges into North Creek approximately 800 feet downstream from the 20th Avenue SE crossing.</p>																

Attachment C: Impacted Stream Summary Tables

STREAM INFORMATION SUMMARY	
Riparian/Buffer Condition	<p>Near the I-405 South Fork Perry Creek culvert crossing, the riparian buffer includes bigleaf maple trees and Himalayan blackberry. Riparian vegetation further downstream includes red alder, vine maple, Japanese knotweed, and salmonberry. Overstory canopy cover is approximately 30 percent.</p> <p>The North Fork Perry Creek buffer is composed of remnant cedar forest near southbound I-405, with open areas of mostly reed canarygrass near 20th Avenue SE. The understory is dominated by dense thickets of Himalayan blackberry overhanging the channel, mixed with some salmonberry and swordfern. Canopy cover is approximately 75 percent, except over the pool area at the culvert outlet.</p> <p>Riparian vegetation observed along the mainstem Perry Creek include red alder, western red cedar, and Himalayan blackberry, with approximately 30 percent overstory canopy cover increasing to 60 percent canopy cover downstream of 20th Avenue SE.</p>

Attachment C: Impacted Stream Summary Tables

Table 6. Stream Information Summary—Queensborough Creek

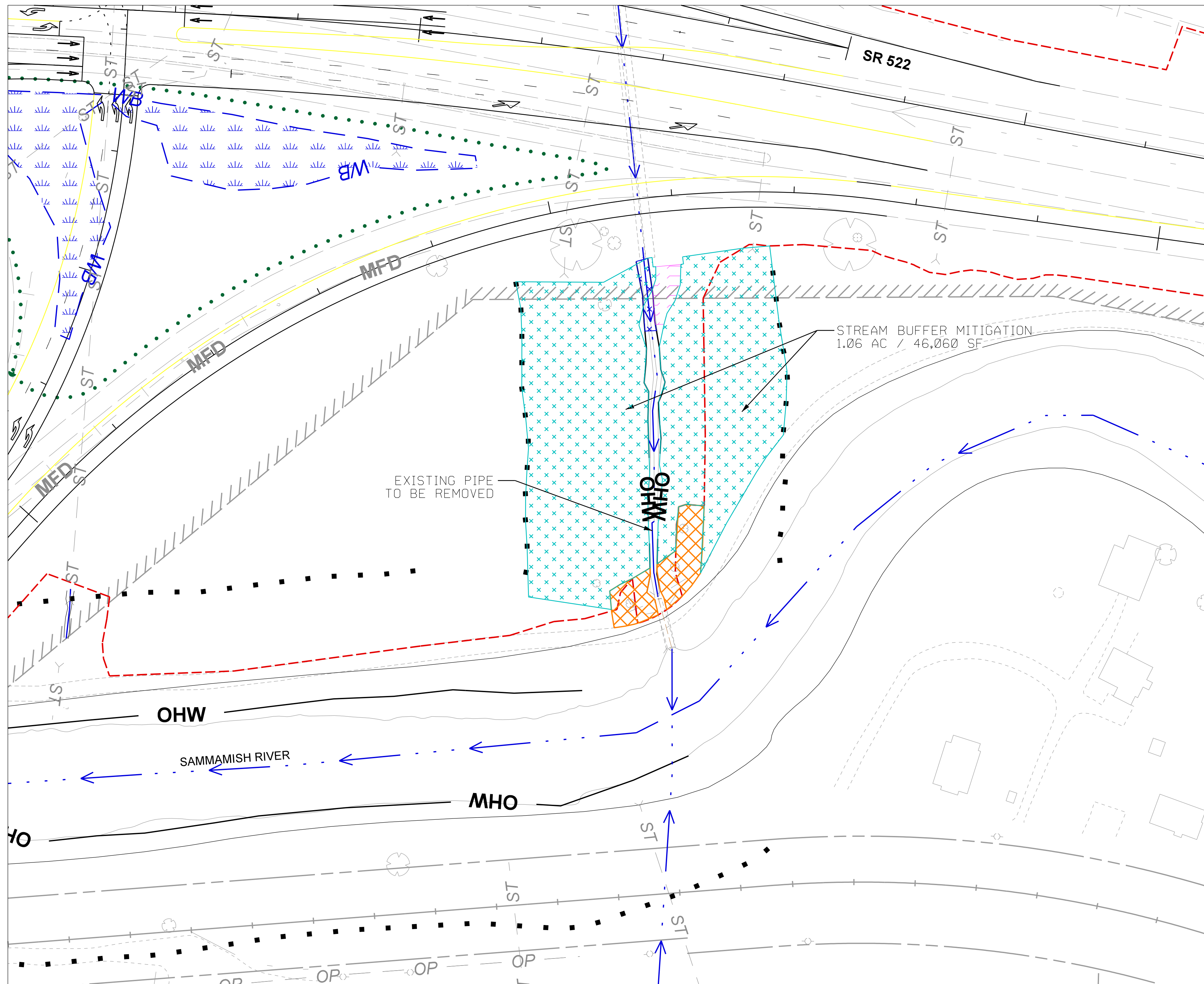
STREAM INFORMATION SUMMARY																	
	<table border="1"> <tr> <td>Stream Name</td> <td>Queensborough Creek</td> </tr> <tr> <td>WRIA</td> <td>8</td> </tr> <tr> <td>WA Stream Catalog #</td> <td>N/A</td> </tr> <tr> <td>Local Jurisdiction</td> <td>City of Bothell</td> </tr> <tr> <td>DNR Stream Type</td> <td>Type F</td> </tr> <tr> <td>Local Stream Rating</td> <td>Type F</td> </tr> <tr> <td>Buffer Width</td> <td>100 feet</td> </tr> <tr> <td>Documented Anadromous Fish Use</td> <td>Sockeye, winter steelhead, coho, fall Chinook (SalmonScape)</td> </tr> </table>	Stream Name	Queensborough Creek	WRIA	8	WA Stream Catalog #	N/A	Local Jurisdiction	City of Bothell	DNR Stream Type	Type F	Local Stream Rating	Type F	Buffer Width	100 feet	Documented Anadromous Fish Use	Sockeye, winter steelhead, coho, fall Chinook (SalmonScape)
	Stream Name	Queensborough Creek															
	WRIA	8															
	WA Stream Catalog #	N/A															
	Local Jurisdiction	City of Bothell															
	DNR Stream Type	Type F															
	Local Stream Rating	Type F															
Buffer Width	100 feet																
Documented Anadromous Fish Use	Sockeye, winter steelhead, coho, fall Chinook (SalmonScape)																
Location of Stream Relative to Project Corridor	Queensborough Creek crosses I-405 from west to east at MP 26.87 and crosses SR 527 from north to south at MP 2.78.																
Connectivity (where stream flows from/to)	Originates in a residential area west of I-405 between 216th Street SW and 224th Street SW. The channel flows east through a residential area and a forested area before crossing I-405 via a 42-inch diameter culvert. Downstream of the I-405 crossing, the stream flows approximately 700 feet southeast through a forested area and crosses SR 527 through a 48-inch diameter culvert. It then flows through a confined forested area between a business park and the Canyon Park Park and Ride, and crosses 17th Avenue SE via a 56-inch diameter culvert. From there, the creek is channelized, flows north for approximately 200 feet along 17th Avenue SE, makes a 90 degree turn, and then enters North Creek approximately 700 feet east.																
Riparian/Buffer Condition	Upstream of the I-405 crossing (west of I-405), riparian understory vegetation is dominated by salmonberry, with some swordfern and Himalayan blackberry. The overstory canopy cover is approximately 60 percent, including western red cedar and bigleaf maple. Downstream of the I-405 crossing and upstream of 17th Ave SE, the riparian buffer overstory is dominated by red alder, with some western red cedar and cottonwood. Overstory canopy cover varies from 50 to 90 percent. The understory includes vine maple, salmonberry, and Himalayan blackberry. The riparian buffer between the Canyon Park Park and Ride and the office park is very narrow, approximately 10 to 30 feet on each side of the channel. The section of stream along 17th Avenue SE has little to no riparian buffer. Riparian vegetation is dominated by Himalayan blackberry.																

References

Williams, R.W., R. Laramie, and J.J. Ames. 1975. *A catalog of Washington streams and salmon utilization*. Volume 1, Puget Sound. Washington Department of Fisheries, Olympia, Washington.

Attachment D

Conceptual Mitigation Plan

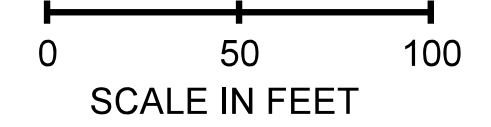


LEGEND	
	WETLAND
	WETLAND BOUNDARY
	WETLAND BUFFER
	STREAM CENTER LINE
	OHW ORDINARY HIGH WATER MARK BOUNDARY
	STREAM BUFFER
	WETLAND BUFFER MITIGATOIN
	STREAM BUFFER MITIGATOIN
	PROTECT MATURE NATIVE TREES

STREAM BUFFER PLANTING		QUANTITY THIS SHEET
SCIENTIFIC NAME	COMMON NAME	
AMELANCHIER ALNIFOLIA ¹	WESTERN SERVICEBERRY	1.06 AC
BERBERIS AQUIFOLIUM ¹	TALL OREGON GRAPE	
BERBERIS NERVOSA ¹	LOW OREGON GRAPE	
CORYLUS CORNUTA ¹	WESTERN HAZELNUT	
GAULTHERIA SHALON ¹	SALAL	
HOLIDISCUS DISCOLOR	OCEANSPRAY	
POLYSTICHUM MUNITUM ¹	WESTERN SWORDFERN	
RUBUS PARVIFLORUS	THIMBLEBERRY	
SYMPHORICARPOS ALBUS ¹	SNOWBERRY	
VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	
LONICERA INVOLUCRATA	TWINBERRY	
ROSA NUTKANA	NOOTKA ROSE	
RUBUS SPECTABILIS	SALMONBERRY	
PSEUDOTSUGA MENZIESII	DOUGLAS FIR	

¹ To be installed in drier conditions.
² To be installed in wetter conditions.

NOTES:
 The plant list above is conceptual and subject to change as needed to accommodate hydrologic conditions and other site conditions.
 Impacts to existing native trees and shrubs and their root zones shall be avoided to the greatest extent possible.



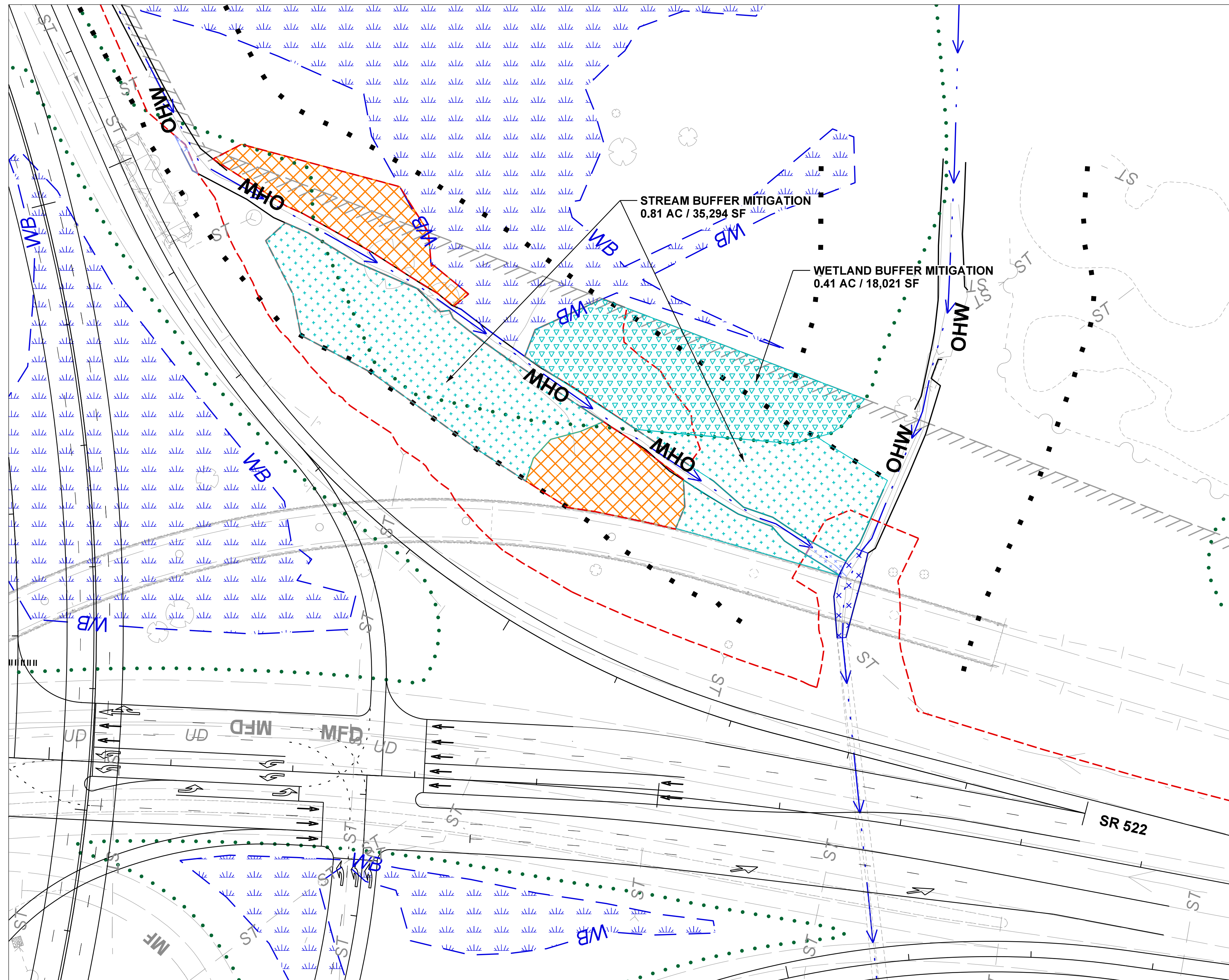
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TIME		10	WASH				
DATE		JOB NUMBER					
PLOTTED BY		CONTRACT NO.		LOCATION NO.			
DESIGNED BY	J. LONG						
ENTERED BY	M. DOO						
CHECKED BY							
PROJ. ENGR.	C.BARNETT						
REGIONAL ADM.	K. HENRY	REVISION	DATE	BY			



I-405
SR 522 VICINITY TO SR 527
EXPRESS TOLL LANES IMPROVEMENT PROJECT

CONCEPTUAL MITIGATION PLAN

PLAN REF NO
 SHEET
 2
 OF
 2
 SHEETS



LEGEND

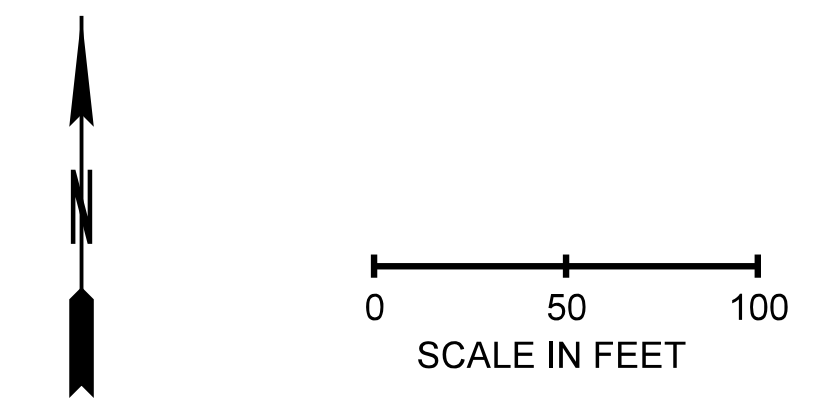
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- WETLAND BOUNDARY
- WETLAND BUFFER
- STREAM CENTER LINE
- ORDINARY HIGH WATER MARK BOUNDARY
- STREAM BUFFER
- WETLAND BUFFER MITIGATION
- STREAM BUFFER MITIGATION
- PROTECT MATURE NATIVE TREES

STREAM BUFFER PLANTING			QUANTITY
SCIENTIFIC NAME	COMMON NAME		
AMELANCHIER ALNIFOLIA ¹	WESTERN SERVICEBERRY	0.81 AC	
BERBERIS AQUIFOLIUM ¹	TALL OREGON GRAPE		
BERBERIS NERVOSA ¹	LOW OREGON GRAPE		
CORYLUS CORNUTA ¹	WESTERN HAZELNUT		
GAULTHERIA SHALON ¹	SALAL		
POLYSTICHUM MUNITUM ¹	WESTERN SWORDFERN		
PSEUDOTSUGA MENZIESII ¹	DOUGLAS FIR		
SYMPHORICARPOS ALBUS ¹	SNOWBERRY		
VACCINIUM OVATUM ¹	EVERGREEN HUCKLEBERRY		
LONICERA INVOLUCRATA	TWINBERRY		
ROSA NUTKANA	NOOTKA ROSE		
RUBUS SPECTABILIS	SALMONBERRY		
CORNUS SERICEA ²	RED-OSIER DOGWOOD		

WETLAND BUFFER PLANTING			QUANTITY
SCIENTIFIC NAME	COMMON NAME		
AMELANCHIER ALNIFOLIA ¹	WESTERN SERVICEBERRY	0.41 AC	
BERBERIS NERVOSA ¹	LOW OREGON GRAPE		
GAULTHERIA SHALON ¹	SALAL		
HOLODISCUS DISCOLOR ¹	OCEANSPRAY		
POLYSTICHUM MUNITUM ¹	WESTERN SWORDFERN		
RUBUS PARVIFLORUS ¹	THIMBLEBERRY		
SALIX SITCHENSIS ²	SITKA WILLOW		
RUBUS SPECTABILIS	SALMONBERRY		

¹ To be installed in drier conditions.
² To be installed in wetter conditions.

NOTES:
¹ The plant list above is conceptual and subject to change as needed to accommodate hydrologic conditions and other site conditions.
² Impacts to existing native trees and shrubs and their root zones shall be avoided to the greatest extent possible.



FILE NAME		REGION NO.		STATE	FED.AID PROJ.NO.	 Washington State Department of Transportation	I-405 SR 522 VICINITY TO SR 527 EXPRESS TOLL LANES IMPROVEMENT PROJECT	PLAN REF NO.
TIME	DATE	10	WASH					SHEET 1 OF 2 SHEETS
DESIGNED BY	J. LONG	JOB NUMBER				CONCEPTUAL MITIGATION PLAN		
ENTERED BY	M. DOO	CONTRACT NO.		LOCATION NO.				
CHECKED BY	C.BARNETT	REVISION	DATE	BY				
PROJ. ENGR.	K. HENRY							