2009
WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form [help]

US Army Corps of Engineers
Seattle District

AGENCY USE ONLY

Date received:

Agency reference #:

Tax Parcel #(s):

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HABITAT PROGRAM

USE BLACK OR BLUE INK TO ENTER ANSWERS IN WHITE SPACES BELOW.

Part 1–Project Identification

Unique project information that makes it easy to identify. [help]

1a. Unique Project Identifier Number (UPI #) [help]

- Don't have one yet? Get one at http://www.epermitting.wa.gov or call the Washington Governor's Office of Regulatory Assistance at (800) 917-0043.

094311-09-01

1b. Project Name (Examples: Smith's Dock or Seabrook Lane Development) [help]

SR 14, Camas Washougal - Add Lanes and Build Interchange Project

Part 2–Applicant

The person or organization responsible for the project. [help]

2a. Name (Last, First, Middle) and Organization (If applicable)

2b. Mailing Address (Street or PO Box)

2c. City, State, Zip

2d. Phone (1)	2e. Phone (2)	2f. Fax	2g. E-mail
	()		

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b. of this application.) [help]

3a. Name (Last, First, Middle) and Organization (If applicable)

N/A

3b. Mailing Address (Street or PO Box)

3c. City, State, Zip

3d. Phone (1)	3e. Phone (2)	3f. Fax	3g. E-mail
( )	( )	( )	

Part 4–Property Owner(s) [help]

Contact information for people or organizations owning the property(ies) where the project will occur. [help]

☒ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple property owners. Complete the section below and use JARPA Attachment A for each additional property owner.

4a. Name (Last, First, Middle) and Organization (if applicable)			
4b. Mailing Address (Street or PO Box)			
4c. City, State, Zip			
4d. Phone (1)	**4e.** Phone (2)	**4f.** Fax	**4g.** E-mail
( )	( )	( )	

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☒ There are multiple properties or project locations (e.g., linear projects). Complete the section below and use JARPA Attachment B for each additional property.

5a. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5n.) [help]

State Route (SR) 14 Milepost (MP) 11.93 to MP 15.51

5b. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Within the cities of Camas (98607) and Washougal (98671), WA

5c. County [help]

Clark County

5d. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
	7.	1 North	4 East
	9, 10, 11, 12, 13, 14, & 15.	1 North	3 East

5e. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long

Starting: 45.580 N Latitude / -122.436 W Longitude, **Ending:** 45.579 N Latitude / -122.370 W Longitude

5f. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

5g. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ State Owned Aquatic Land ☐ Tribal ☐ Private

☒ Other publicly owned (federal, state, county, city, special districts like schools, ports, etc.)

5h. Contact information for all adjoining property owners, lessees, etc. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)

5i. Is any part of the project area within a 100-year flood plain? [help]

☒ Yes ☐ No ☐ Don't know

5j. Briefly describe the vegetation and habitat conditions on the property. [help]

The project area contains a variety of vegetation and habitats. Vegetation includes tree species such as Douglas fir, pine, alder, big-leaf maple, oak, cottonwood, and willow. Shrubs and grasses, including snowberry, dogwood, reed canary grass, and lawn are also present. Wet soil plants include sedge, false indigo, ash, and rush, as well as invasive species such as Himalayan blackberries and English ivy. In the vicinity of the proposed interchange, vegetation is primarily limited to ornamental shrubs, maintained lawn, and grassy utility right-of-way.

The Columbia River, Camas Slough, and Washougal River are documented migration routes for various fish species. Furthermore, the Columbia River is part of the Pacific Flyway for migrating birds. Some of the islands in the lower river support gull (*Larus* spp.) and Caspian tern (*Sterna caspia*) nesting colonies, while great blue heron (*Ardea herodias*) colonies are found throughout the river area. Large numbers of shorebirds and songbirds pass through the area on their annual migrations. The area also provides migratory and wintering habitat for a number of waterfowl species.

5k. Describe how the property is currently used. [help]

The principal land use in the project area is state highway and associated right-of-way. Since the 1960s, this section of State Route (SR) 14 has served as a connection between the City of Vancouver and the cities of Camas and Washougal, as well as a connection between eastern and western Washington.

5l. Describe how the adjacent properties are currently used. [help]

Properties adjacent to the project consist of residential, and small-scale commercial at the west end of the project; heavy industrial on Lady Island; and commercial, park, light industrial, and residential, east of Lady Island, to the Camas/Washougal boundary. The section within Washougal includes highway, commercial, light industrial, industrial mixed use, and residential uses.

5m. Describe the structures (above and below ground) on the property, including their purpose(s). [help]

Existing structures include the highway infrastructure, bridge piers, guardrail, culverts, luminaires, signage, and connecting local roads. There are also businesses, utility providers, and residential buildings located adjacent to the project area.

5n. Provide driving directions from the closest highway to the project location, and attach a map. [help]

The project is located on SR 14 from Milepost (MP) 11.93 to MP 15.51. See Vicinity Map in Appendix A.

From I-5 or I-205, take the SR 14 exit east to MP 11.93.

From US 97 or I-82, take SR 14 west to MP 15.51.

Part 6–Project Description

6a. Summarize the overall project. You can provide more detail in 6d. [help]

The Washington State Department of Transportation (WSDOT) proposes to improve safety and mobility through this section of SR 14 by adding two travel lanes, replacing existing at-grade intersections with a split-diamond interchange, constructing an additional bridge parallel to the existing East Camas Slough (ECS) Bridge (14-027), and adding a median barrier throughout the project in the cities of Camas and Washougal.

Features of the project design include:

- Construct a split-diamond interchange on SR 14 at SE Union St. (SR 500) and 2nd St. with roundabouts at each of the ramp terminals. The eastbound off-ramp and westbound on-ramp intersect with SE Union St.; the eastbound on-ramp and westbound off-ramp intersect with 2nd St.
- Construct two additional lanes adjacent to and north of the existing lanes of SR 14 from the east end of the West Camas Slough (WCS) Bridge in Camas to the new split-diamond interchange at 2nd St.
- Shift SR 14 slightly north between Union Street and 2nd St. within the existing right-of-way, in order to avoid impacts to existing high voltage electrical infrastructure and an historical site/recreational park.
- Build retaining walls or steepened slopes as necessary throughout the length of the improvement to maximize the use of existing State right-of-way and minimize impacts to adjacent properties and businesses.
- Utilize natural dispersion and infiltration for stormwater treatment to minimize the need to acquire and clear additional right-of-way for stormwater detention facilities, and to avoid environmental impacts of stormwater outfalls.
- Retrofit the existing WCS Bridge rail to accommodate a new centerline median barrier.
- Construct a new parallel bridge adjacent to, and north of, the existing ECS Bridge to accommodate the additional lanes.
- Install median barrier on SR 14 between NW 6th Ave. in Camas to just west of 6th St. in Washougal to reduce the severity of collisions along the corridor.
- Revise access to SR 14 on Lady Island to eliminate left turns.
- Widen the existing SE Union and 2nd St. alignments and adjust profiles through the SR 14 Interchange to accommodate projected traffic volumes and minimize the height of the new overcrossings.
- Implement Limited Access within the new interchange area in order to preserve the safety and efficiency of the facility.
- Remove existing traffic signals at SR 14 / SE Union St. and SR 14 / 2nd St.
- Construct a new frontage road just south of SR 14 to connect SE Union St. to 6th St. in Washougal.
- Eliminate the SR 14 / 6th St. intersection.

Construction activities will include clearing and grubbing, grading, roadway excavation, paving, drainage, Temporary Erosion and Sediment Control (TESC), construction of permanent stormwater treatment Best Management Practices (BMPs), utilities, median barrier, illumination, constructing bridge structures, and guardrail.

6b. Indicate the project category. (Check all that apply.) [help]

☐ Commercial ☐ Residential ☐ Institutional ☒ Transportation ☐ Recreational
☐ Maintenance ☐ Environmental Enhancement

6c. Indicate the major elements of your project. (Check all that apply.) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☒ Road
☒ Bank Stabilization	☐ Dam / Weir	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat House	☐ Dike / Levee / Jetty	☒ Land Clearing	☐ Stairs
☐ Boat Launch	☒ Ditch	☐ Marina / Moorage	

☐ Boat Lift	☐ Dock / Pier	☐ Mining	☒ Stormwater facility
☒ Bridge	☐ Dredging	☐ Outfall Structure	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Piling	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☒ Retaining Wall (upland)	
☐ Channel Modification	☐ Fishway		
☐ Other: _____			

6d. Describe how you plan to construct each project element checked in 6c. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year flood plain.

Construction of project elements includes the following:

1. **Identify/Protect Sensitive Areas,**
   a. Install High Visibility Fence and Temporary Erosion and Sediment Control (TESC) Best Management Practices (BMPs) to protect sensitive areas and minimize impacts
   b. BMPs may include, but are not limited to:
      i. Erosion control measures specifically addressing temporary stabilization of disturbed areas, cut and fill slopes, work in close proximity to wetlands and streams, and in-water work, such as: sediment dams, temporary sediment ponds, silt fence, wattles, and construction of permanent BMPs as early as project schedule allows. Other BMPs not listed will be used as necessary to achieve full compliance with all applicable laws and regulations.
      ii. Spill Prevention, Control, and Countermeasures (SPCC), including equipment fueling and maintenance locations, designated construction access points with tire washing facilities, daily inspection of equipment, etc.
      iii. Proper hazardous and conventional waste handling and disposal.
      iv. Project scheduling and timing – The project will, to the fullest extent practicable, perform major excavation during the dry season, minimize the amount of exposed soils at any one time, and perform all in-water work during the specified in-water work window of July 15 – October 15.
2. **Site Preparation, and Mobilization**
   a. Mobilization and establishment of staging areas for equipment, materials, and storage by WSDOT's contractor is expected to begin during the spring of 2010. Staging area(s) may be within existing WSDOT right-of-way or adjacent property selected by the contractor and approved by WSDOT.
3. **Construct Stormwater Facilities and Earth Berm Near Proposed Interchange Area** – (Partially within the 100-year floodplain)
   a. Remove approximately 7,500 c.y. of material from the area southwest of the intersection of SR 14 and SE Union St. to accommodate proposed stormwater treatment facilities. All stormwater design components will be designed to meet the 2008 WSDOT Highway Runoff Manual (HRM).

Stormwater design strategy takes into account the following baseline and proposed conditions:

Type	Area (SF)	Area (acre)
New Impervious Surface	653,836	15.01
Replaced Impervious Surface	459,122	10.54
Existing Impervious Surface	798,455	18.33

The project's water quality and flow control treatment strategies include the following:

BMP Name	Type	BMP Bottom Area (SF)	Pond Bottom Elevation (Ft)	Pond Volume (CF)
Wetpond A1	Wetpond	3,300	28	39,600
Infiltration Pond A2	Infiltration Pond	19,800	29	259,400
Infiltration Pond A3	Infiltration Pond	12,000	32	84,600
Infiltration Pond B	Infiltration Pond	1,500	36	26,800
Infiltration Pond D	Infiltration Pond	3,131	40	44,500
Infiltration Pond E	Infiltration Pond	7,500	36	95,200
Infiltration Pond F	Infiltration Pond	12,000	35	65,100
Infiltration Pond G	Infiltration Pond	6,040	39	64,900
Infiltration Pond H	Infiltration Pond	14,000	33	166,100
Dispersion A	Dispersion	150,000	n/a	n/a

b. Use approximately 5,000 c.y. of excavated material to construct an earth berm on the south side of the stormwater facilities to shield the adjacent properties from construction activities and minimize visual impacts.

4. **Perform Ground Improvement to Mitigate Liquefaction Risk – East Abutment Area of Proposed East Camas Slough Bridge** – (Outside of the 100-year floodplain)

WSDOT geotechnical investigations identified the east abutment area of the proposed ECS Bridge as having a liquefaction risk during a seismic event. Ground improvement (described below) will address this risk.

a. Install temporary shoring along the north side of existing SR 14 travel lanes the entire length of the Ground Improvement Area (Approximately 250' long x 80' wide x 40' max depth to bedrock). This will be accomplished using vibratory installation methods.

b. Remove approximately 22,000 c.y. of existing roadway base material, north of the existing SR 14 and approximately 10' above/outside of the OHWM, to create a level work surface. This will be accomplished using excavators, bulldozers, and dump trucks. If suitable, this material may be used as roadway embankment in other locations on the project.

c. Perform Ground Improvement through either Aggregate Piers or Stone Columns Method (described below)

i. **Aggregate Piers** – Aggregate Piers consist of conventional drilled shafts that are excavated and subsequently filled with aggregate material that is compacted in lifts by use of a down-hole vibratory compactor. Temporary casing may be necessary if the drilled shafts extend through material that is susceptible to caving or extends below the groundwater. The vibratory energy and ramming action of the vibrator causes the dense aggregate to interlock and form a stiff pier that engages the surrounding soil, providing reinforcement and increased shear resistance.

ii. **Stone Columns** – Stone Columns are a ground improvement technique that combines soil densification and partial replacement with crushed rock. A vibratory probe is inserted into the ground to a desired depth to densify the soil. While the vibrator is working, crushed rock is placed in the void at the base of the hole created by the densification. This crushed rock is densified by the vibration and pushed out against the surrounding soil, further densifying it. More crushed rock is added as the probe is slowly removed from the soil, creating a crushed rock (stone) column with densified soil surrounding it through the full depth of the modified soil. These stone columns are repeated on a regular grid pattern across the entire Ground Improvement Area.

d. Replace roadway base material with stable material

5. Add a New East Camas Slough Bridge and Resurface Existing East Camas Slough Bridge

a. Install turbidity curtains within Camas Slough around each of the in-water pier (#s 2 & 3) work areas. Deploy the turbidity curtains using small boats and place anchors using small cranes mounted on the boats

b. Remove fish from inside the turbidity curtain using WSDOT approved procedures

c. Remove riprap and create a level bench on the riverbed at each pier location. A thumbed hydraulic excavator or crane with a clamshell could be used to perform this excavation

d. Install cofferdams for in-water piers (#s 2 & 3) using vibratory installation methods to isolate pier work areas during approved in-water work windows. A hydraulic impact hammer (Hoe Ram) may be used to break portions of weathered bedrock, in order to seat the cofferdams into the rock

e. Replace streambed material around each cofferdam within the turbidity curtain area

f. Gradually remove the turbidity curtains to minimize temporary turbidity impacts

g. Excavate the isolated work area within the cofferdams down to bedrock to accommodate pier seal and footing construction

h. Pour a concrete seal within each cofferdam to eliminate hydrologic connectivity of the isolated work area and Camas Slough

i. Dewater the in-water pier work area within each cofferdam. Water will be treated by infiltration outside of the OHWM or contained and trucked off site to a properly permitted and approved facility

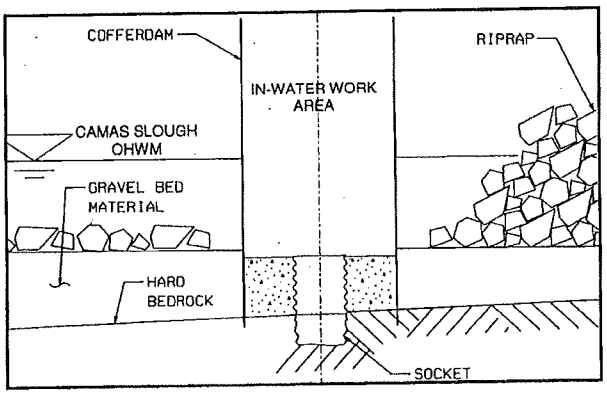
j. Excavate further in the central portion of the seal into the bedrock using the hoe ram to create a socket for each pier foundation (see graphic)

k. Construct concrete footings for in-water piers in isolated work areas

   i. Construct footing forms

   ii. Pour concrete footings, one for each in-water pier

   iii. Drill and install tensioned rock anchors for tension connection between footings and bedrock



l. Construct in-water concrete pier columns in the isolated work areas to above the OHWM

   i. Construct the pier column forms

ii. Pour concrete pier columns for piers 2 and 3

m. Replace streambed material/gravel around each in-water pier to match original/adjacent contours and grade and cover the tops of the pier footings

n. Gradually remove the in-water cofferdams to develop an equilibrium within the isolated in-water work area and minimize temporary turbidity impacts

o. Construct concrete pier caps (above OHWM)

p. Set bridge girders (above OWHM)

q. Construct the concrete bridge deck (above OWHM)

i. Form the bridge deck

ii. Pour the concrete bridge deck

r. Construct bridge railings (above OWHM)

i. Form concrete barrier

ii. Pour concrete barrier and install steel bridge rail

s. Paint lane striping on the new ECS Bridge (above OWHM)

t. Move traffic to new East Camas Slough Bridge and new lanes on Lady Island (see 8.e) and resurface existing East Camas Slough Bridge.

6. **Perform West Camas Slough Bridge Rail Retrofit** – (All of this work will occur above the OHWM and 100-year floodplain and will be fully contained)

a. Set a temporary traffic barrier to create a safe work area on one side of bridge (east or west)

b. Remove navigation lights

c. Install temporary scaffolding to the existing bridge girders and install/construct concrete debris and waste containment

d. Remove the existing guardrail, concrete curb and rail, and a portion of the concrete cantilever deck.

e. Drill and epoxy dowel new rebar to tie the new concrete cantilever deck into the outside edge of the existing bridge deck

f. Form and pour new concrete cantilever deck and rail base

g. Install steel exterior bridge rail

h. Overlay the isolated work area with Hot Mix Asphalt (HMA) and install utility conduit under new deck

i. Remove the temporary scaffolding and containment system

j. Reinstall navigation lights

k. Move the temporary work area isolation barrier to the other side of the bridge and repeat steps "a" through "j" described above

l. Isolate the centerline median area from traffic using temporary barriers

m. Drill and epoxy dowel new rebar to tie new concrete median curb into existing deck.

n. Form and pour new concrete curb down center of bridge

o. Install median steel bridge rail

p. Overlay the remaining bridge deck areas with HMA

q. Remove temporary traffic barriers

7. **Construct A Split-Diamond Interchange at SE Union and 2nd Streets**

Building the new interchange and structures may require pile driving (above OHWM and outside of the 100-year floodplain), concrete forming, rebar installation, and concrete pouring. Typical equipment that

may be used include: excavators, concrete cutters, jackhammers, pile driving equipment, cranes, graders, scrapers, dozers, backhoes, track hoes, front-end loaders, dump trucks, water trucks, and concrete trucks.

a. **Stage 1**
   i. Construct north roundabout at SE Union St. (to connect with 8th Ave.)

b. **Stage 2**
   i. Construct the eastbound SR 14 off-ramp (to SE Union St.)
   ii. Construct south roundabout at SE Union St (to connect with 11th Ave)
   iii. Construct frontage road (south of SR 14) from SE Union St to 2nd St.
   iv. Construct frontage road (south of SR 14) from 2nd St. to SR 14 west of 6th St. for temporary construction detour
   v. Construct north and south roundabouts at 2nd St. ramp terminals
   vi. Add temporary traffic signals at existing 6th St. intersection

c. **Stage 3**
   i. Detour SR 14 traffic to new frontage road alignment
   ii. Lower the grade of SE Union St. and 2nd St. crossings
   iii. Construct new Union St. and 2nd St. alignments
   iv. Construct bridges at SE Union St. and 2nd St. to allow SR 14 to pass overhead
   v. Construct SR 14 roadway embankment, bridge approach fills, and retaining walls from west of Union to east of 2nd
   vi. Construct new eastbound on ramp, westbound off ramp, and westbound on ramp
   vii. Install median barrier,
   viii. Pave new raised SR 14 from west of SE Union St. ramp ends to east of 2nd St.
   ix. Install permanent signs, and paint final stripes

d. **Stage 4**
   i. Pave SR 14 taper from east 2nd St. ramp ends to 6th St vicinity (project end)
   ii. Remove temporary frontage road connection with SR 14, between 2nd and 6th Streets, and complete frontage road connection to 6th St. (south of SR 14)
   iii. Remove 6th St intersection with SR 14

8. Add Two Westbound Travel Lanes on Lady Island

a. Clear and grub the existing roadway fill placed in the 1960s
b. Prepare road base on top of existing roadway subgrade for new westbound lanes
c. Install median barrier
d. Pave two new 12-foot (westbound) lanes with 10-foot shoulders
e. Move all traffic to new SR 14 lanes, adjust profile to improve drainage and overlay existing lanes
f. Paint final stripes and install permanent signs

9. Open Project Area to Traffic

10. Revegetation, Restoration, and Enhancement

a. Weed control, vegetation management, and permanent re-vegetation consisting of native woody and herbaceous plant material in the following areas (See Appendix B, Mitigation Memorandum):
   i. Stormwater flow control area on Lady Island

ii. ECS Bridge stream/riparian buffer area

iii. Offsite riparian enhancement area

b. Maintenance as necessary in order to ensure long-term success

i. As described in the SR 14 Camas Washougal, Add Lanes and Build Interchange Project's attached mitigation memorandum (Appendix B)

11. Site Stabilization, Remove TESC BMPs

a. Permanent site stabilization and restoration, including but not limited to replanting disturbed areas with native woody vegetation in accordance with the Roadside Classification Plan, will be constructed by a WSDOT agent (via agreement), or the contractor.

b. All BMPs for temporary sediment control and temporary site stabilization will be removed by the contractor, once final site stabilization is achieved.

12. Maintenance and Monitoring

a. Drainage structures will require general maintenance, such as removal of sediments and debris that accumulate over time.

b. Vegetated side slopes and other permanently restored areas may require mowing and other plant establishment activities during the growing season.

c. Paved roadway surfaces and safety appurtenances will require periodic maintenance and repair to remain effective.

6e. What are the start and end dates for project construction? (month/year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start date: April 2010 End date: December 2012 ☐ See JARPA Attachment D

6f. Describe the purpose of the work and why you want or need to perform it. [help]

The Project Purpose is:

To increase the vehicle throughput and improve safety on this freight, commuter, and recreational route by adding lanes from MP 11.93 to 15.51 building a split-diamond interchange at SE Union and 2nd Streets with roundabouts at each ramp terminal, installing median barrier from 6th Ave to 6th St., eliminating the at-grade intersection at SR 14 and 6th St. in Washougal, building a new parallel ECS Bridge adjacent to the current bridge, retrofitting the bridge rail on the WCS Bridge, and constructing a new frontage road south of the SR 14 from SE Union St. to 6th St., intersecting 2nd St. in between.

The Project Need is:

This highway section is experiencing an increase in travel time delay and the current corridor and at-grade intersections are identified on the Southwest Region High Accident Corridor (HAC) and High Accident Location (HAL) Lists.

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

The current project construction estimate is approximately $50,000,000.

6h. Will any portion of the project receive federal funding? [help]

- **If yes,** list each agency providing funds.

☒ Yes ☐ No ☐ Don't know

Federal Highway Administration (FHWA).

Part 7–Wetlands: Impacts and Mitigation

☒ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.)

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☐ Not applicable

A Wetland Assessment Report completed for the project (included in Appendix C, Supporting Documentation CD), has identified multiple wetlands in the project vicinity. The majority of these wetlands are on Lady Island, adjacent to the existing SR 14 roadway prism. However, there will be no impacts to wetlands related to the proposed project. Design measures were incorporated to avoid potential impacts to wetlands or buffers.

Utilizing existing fill on Lady Island, placed in the 1960s, will allow the project to completely avoid direct wetland impacts and minimize potential impacts to wetland buffers.
The proposed project design represents the least effect to wetland buffers possible by:

- Minimizing the project footprint by utilizing the existing roadway prism in the vicinity of wetlands,
- Designing steepened slopes, where possible, in wetland buffer areas,
- Minimizing bridge construction impacts by working in isolated cofferdams and from previously disturbed areas,
- Limiting the amount of clearing and grubbing to the minimum necessary, and
- Marking sensitive areas and clearing limits and installing erosion and sediment control BMPs as the first order of work.

7b. Will the project impact wetlands? [help]

☐ Yes ☒ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☒ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If yes**, submit the report, including data sheets, with the JARPA package.

☒ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If yes**, submit the wetland rating forms and figures with the JARPA package.

☒ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If yes**, submit the plan with the JARPA package.

☐ Yes ☐ No ☒ Not applicable

7g. Use the table below to list the type and rating of each wetland that will be impacted; the extent and duration of the impact; and the type and amount of compensatory mitigation proposed. If you are submitting a compensatory mitigation plan with a similar table, you may simply state (below) where we can find this information in the mitigation plan. [help]

Activity causing impact (fill, drain, excavate, flood, etc.)	Wetland type and rating category[1]	Impact area (sq. ft. or acres)	Duration of impact[2]	Proposed mitigation type[3]	Wetland mitigation area (sq. ft. or acres)

[1] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.

[2] Indicate the time (in months or years, as appropriate) the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.

[3] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: N/A. There will be no impacts to wetlands. Mitigation for temporary impacts to wetland buffers (0.1 acres) is described in the mitigation memorandum (Appendix B).

7h. For all filling activities identified in 7g., describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

There will be no fill within wetlands. However, there will be clearing, and grading of approximately 4,660 square feet (sq. ft.) of wetland buffers to accommodate construction activities (See Appendix A, Project Graphics). These buffers are on the existing roadway fill that was placed in the 1960s to accommodate planned highway capacity improvements. However, they currently provide limited water quality treatment and visual screening functions. Vegetation in these areas consists of roadside grasses, reed canary grass, and weeds. When construction is complete, impacted buffer areas will be restored to pre-project conditions as described in the mitigation memorandum.

7i. For all excavating activities identified in 7g., describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

There will be no excavation within wetlands.

7j. Summarize what the compensatory mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

As there is no wetland impact anticipated, associated with this project, a traditional Compensatory Wetland Mitigation Plan is not necessary. However, WSDOT will ensure no net loss of wetland and stream buffer functions through revegetation of appropriate areas with native vegetation as described in the mitigation memorandum. Additionally, implementation of Temporary Erosion and Sediment Control (TESC) and Spill Prevention and Control Countermeasures (SPCC) Plans will ensure temporary construction impacts are minimized to the greatest extent practicable.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

The project in-water work for the ECS Bridge will only take place during the approved in-water work window from July 15th to October 15th. In-water work will be performed during daylight hours only. During construction, Best Management Practices (BMPs), including a Temporary Erosion and Soil Control (TESC) plan and Spill Prevention, Control, and Countermeasures (SPCC) plan, will be used to contain sediments or pollutants that could potentially enter waterbodies and wetlands. Approved BMPs will be used during construction to keep sediments and pollutants from entering sensitive areas. All project activities will meet state water quality standards.

Other proposed avoidance and minimization measures for the project include:

- Use turbidity curtains at the in-water work areas to minimize turbidity in Camas Slough during the initial excavation of streambed material.
- Once, large riprap material has been removed from within the turbidity curtain, isolate in-water work areas from Camas Slough through the use of cofferdams
- Adhere to the approved Terms & Conditions of the National Marine Fisheries Service (NMFS) Biological Opinion (6/22/2009)
- Implement slow removal of cofferdams and reintroduction of outside water to the isolated in-water pier construction area to minimize turbidity impacts
- Use a thumbed excavator or crane with clam shell device to removed and replace streambed material within the in-water isolated pier construction area to minimize incidental fallback and misplacement of material
- Restrict bridge construction equipment from working in the wetted perimeter of Camas Slough (outside the isolated in-water pier construction area)
- Ensure material has stopped falling/draining from the clam shell or thumbed excavator bucket before it is removed from the isolated work area
- Use vibratory installation and removal methods, rather than impact methods, for in-water isolation devices. Percussion methods will only be used from inside a cofferdam to break up local weathered rock obstructions to aid in advancing the cofferdam.
- Adhere to the terms of the WSDOT/Department of Ecology Implementing Agreement Regarding Washington State's Surface Water Quality Standards
- Revegetate disturbed riparian areas, as appropriate, with native species, according to the WSDOT Roadside Classification Plan
- Implement exclusion area development and fish capture and relocation activities consistent with the most current WSDOT standard practice guidelines for fish handling and relocation
- All debris, overburden, and other waste material from construction will be handled, contained, and disposed of in a manner, which prevents their entry into adjacent sensitive areas, including Waters of the State
- The new ECS Bridge will be designed and constructed to allow all anticipated debris and high water flows to pass freely beneath
- Bridge abutments and approach fills will be located landward of the OHWM
- Maintain all BMPs to ensure their effectiveness throughout project construction

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Summarize impact(s) to each waterbody in the table below. [help]

Activity causing impact (clear, dredge, fill, pile drive, etc.)	Waterbody name	Impact location[1]	Duration of impact[2]	Amount of material to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Two ECS Bridge Piers and Footings Temporary	Camas Slough	Below the OHWM and on the Riverbed	3 months (in-water construction)	Approximately 16,000 cubic yards will be temporarily excavated to accommodate construction of two in-water piers and their footings	Approximately 5,000 sq. ft., or 100 linear ft. of riverbed will be temporarily isolated using cofferdams

Two ECS Bridge Piers and Footings Permanent	Camas Slough	Below the OHWM and on the Riverbed	Bridge Piers and Footings are Permanent	- Approximately 700 cubic yards of permanent excavated substrate - Approximately 800 cubic yards of permanent concrete fill (2 piers and footings)	432 sq. ft. of permanent stream area loss, and 16 feet of channel width loss
ECS Bridge Vic Construction – Clearing and Grading Temporary	Camas Slough	Above the OHWM, Within the 150' Stream Buffer	Construction Access – 2 Years	Material within the stream buffer will be modified during construction activities, but will return to pre-project conditions & vegetation will be restored when complete	Approximately 20,784 sq. ft. of stream buffer impact for temp construction access
SR 14 Interchange Stormwater Treatment Facilities	Columbia River	Within the 100-year Floodplain	Permanent	- Approximately 6,400 cubic yards of excavation - Approximately 7,600 cubic yards of fill	Approximately 2.5 acres of floodplain will be affected

[1] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[2] Indicate the time (in months or years, as appropriate) the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8d. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If yes**, submit the plan with the JARPA package.

☒ Yes ☐ No ☐ Not applicable

8e. Summarize what the compensatory mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7j., you do not need to restate your answer here. [help]

Disturbed portions of Camas Slough riverbed and banks will be restored to pre-project conditions through:

- Replacement of streambed material and contours,
- Revegetation of disturbed areas with appropriate native species, and
- Permanent stabilization of disturbed areas using approved WSDOT Highway Runoff Manual BMPs.
- Invasive species removal and native vegetation planting and maintenance (Offsite Enhancement Area)

Further details on mitigation for stream and stream buffer impacts are provided in the project's Mitigation Memorandum (Appendix B).

8f. For all activities identified in 8c., describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

This construction will result in temporary and permanent impacts to the stream substrate. The in-water work associated with the ECS Bridge will require approximately 16,000 cubic yards (CY) (approximately 700 CY permanent) of stream substrate to be excavated with a thumbed excavator or crane with a clamshell to accommodate the construction of two in-water piers and footings. The pier footings will be formed directly on bedrock (approximately 10 feet beneath the riverbed). Concrete will be poured to the footing forms from a concrete pump truck outside of the cofferdam and outside of the wetted perimeter. Once pier footing construction is complete, clean native substrate will be replaced around each pier to ensure the pier footings reside entirely beneath the riverbed.

8g. For all excavating or dredging activities identified in 8c., describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

To construct the new East Camas Slough Bridge, two piers each with one spread footing will be constructed within Camas Slough. Riprap will be removed and gravel bed material will be leveled for the preparation of cofferdam installation at each pier. Camas Slough turbidity will be minimized during this operation using a turbidity curtain. The material within the turbidity curtain will be excavated using a thumbed excavator or crane with a clamshell outside the wetted perimeter. Pier construction areas will then be isolated from the Camas Slough by cofferdam devices in order to isolate the in-water work area from the flow of Camas Slough and minimize impacts to the aquatic environment. Equipment, landward of the OHWM, will place the barrier in the slough around the proposed in-water pier locations. The area for the pier foundations, within the cofferdam, will be excavated using a thumbed excavator or crane with a clamshell outside of the wetted perimeter, approximately 10 feet in depth, to bedrock. Spread footings will be built in the excavated area and a single concrete pier column built on top of each spread footing. Once the in-water pier columns and footings have cured, approximately 15,000 cubic yards of excavated clean native substrate material will be placed around them, while the remaining portion of excavated material will be taken to an approved and permitted facility, or used on the project as appropriate.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
USACE			August 11, 2009
USCG			August 13, 2009
NMFS			June 23, 2009
USFWS			May 6, 2008
Ecology			March 3, 2009
WDFW			March 16, 2009
Clark County			April 21, 2009
City of Camas			September 1, 2009
City of Washougal			August 5, 2009

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 on the Washington Department of Ecology's 303(d) List? [help]

- **If yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: http://www.ecy.wa.gov/programs/wq/303d/.

☒ Yes ☐ No

The Columbia and Washougal Rivers both have Clean Water Act Section 303(d) impairments; however, the impairments are approximately 1.5 miles from the project site, and will not be affected by the proposed project.

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

HUC # 170800010606: Washougal River Watershed, LaCamas Creek Sub Watershed, Lower Columbia Basin, Lower Columbia/Sandy Subbasin

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to http://www.ecy.wa.gov/services/gis/maps/wria/wria.htm to find the WRIA #.

The Salmon/Washougal Watershed WRIA #28

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to http://www.ecy.wa.gov/programs/wq/swqs/criteria.html for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/211_designations.html.

☐ Rural ☒ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☐ Other _____

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_watertyping.aspx for the Forest Practices Water Typing System.

☒ S ☐ F ☐ Np ☐ Ns

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If no**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

The proposed project is designed using the 2008 WSDOT Highway Runoff Manual. This manual has been determined equivalent to the Stormwater Manual by the Washington Department of Ecology.

9i. If you know what the property was used for in the past, describe below. [help]

Intensive Euro-American settlement of the Camas-Washougal area began in the mid-1840s and 1850s when Euro-Americans came west over the Oregon Trail. Land use in Camas has historically been tied directly to the wood and pulp industry (Georgia Pacific Pulp and Paper Mill). Along with shipping, lumber milling, agriculture (particularly prune orchards), and mining were important industries in the area.

Property adjacent to the project area has been used in many capacities over the years including: residential, commercial, industrial, and sporting (i.e. boating and fishing).

The cities, located near the mouth of the Washougal River, have experienced rapid growth over the last 20 years. The Georgia Pacific (GP) pulp mill site is the dominant feature in the built environment, located on the banks of Camas Slough. GP also owns and operates on Lady Island for wastewater treatment.

Moderate boat traffic occurs in Camas Slough. Several dolphins and mooring areas line both banks of the slough.

Commercial areas are located along the SR 14 corridor and include a large lumberyard, car dealership, furniture store, fast food restaurants, and gas stations.

9j. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If yes**, attach it to your JARPA package.

☒ Yes ☐ No *See Appendix C, Supporting Documentation CD.*

9k. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chinook	Lower Columbia River	*Oncorhynchus tshawytscha*	Threatened	Yes
Chinook	Snake River fall-run	*O. tshawytscha*	Threatened	Yes
Chinook	Snake River spring/summer	*O. tshawytscha*	Threatened	Yes
Chinook	Upper Columbia River spring-run	*O. tshawytscha*	Endangered	Yes
Chum	Columbia River	*O. keta*	Threatened	Yes
Coho	Lower Columbia River	*O. kisutch*	Threatened	Not Designated
Sockeye	Snake River	*O. nerka*	Endangered	Yes
Steelhead	Lower Columbia River	*O. mykiss*	Threatened	Yes
Steelhead	Middle Columbia River	*O. mykiss*	Threatened	Yes
Steelhead	Upper Columbia River	*O. mykiss*	Endangered	Yes
Steelhead	Snake River Basin	*O. mykiss*	Threatened	Yes
Green Sturgeon	Southern DPS	*Acipenser medirostris*	Threatened	No
Steller Sea Lion	Eastern DPS	*Eumetopias jubatus*	Threatened	No
[illegible]				
Bull Trout	Columbia River DPS	*Salvelinus confluentus*	Threatened	No

9I. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

Habitats included in the Washington Department of Fish and Wildlife's Priority Habitats and Species List occurring in the project area include Oak Woodlands, Riparian Areas, and Urban Natural Open Space. Construction activities may temporarily disturb the riparian zone in the vicinity of the ECS Bridge on Lady Island. However, these areas will be restored to pre-project conditions and planted, where appropriate, when construction is complete.

Part 10–Identify the Permits You Are Applying For

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.ecy.wa.gov/opas/.
- Governor's Office of Regulatory Assistance at (800) 917-0043 or help@ora.wa.gov.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to www.ecy.wa.gov/programs/sea/sepa/e-review.html.

☒ A copy of the SEPA determination or letter of exemption is included with this application. See Appendix C, Supporting Documentation CD.

☐ A SEPA determination is pending with _____ (lead agency). The expected decision date is _____.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.)

- Submit the Fish Habitat Enhancement Project form with this application. The form can be found at http://www.epermitting.wa.gov/Portals/ JarpaResourceCenter/images/default/fishenhancement.doc

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt? _____

☐ Other: _____

☐ SEPA is pre-empted by federal law. [help]

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☒ Substantial Development ☒ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain):

Other city/county permits:

☒ Floodplain Development Permit ☒ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

Washington Department of Natural Resources:

☒ Aquatic Resources Use Authorization

FEDERAL GOVERNMENT

United States Department of the Army permits (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☐ Section 10 (work in navigable waters)

United States Coast Guard permits:

☒ General Bridge Act Permit ☐ Private Aids to Navigation (for non-bridge projects)

Part 11–Authorizing Signatures

Signatures required before submitting the JARPA package.

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. _____ (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. _____ (initial)

Applicant _____ Date 9/22/09

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Authorized Agent _____ Date _____

11c. Property Owner Signature (if not applicant) [help]

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner _____ Date _____

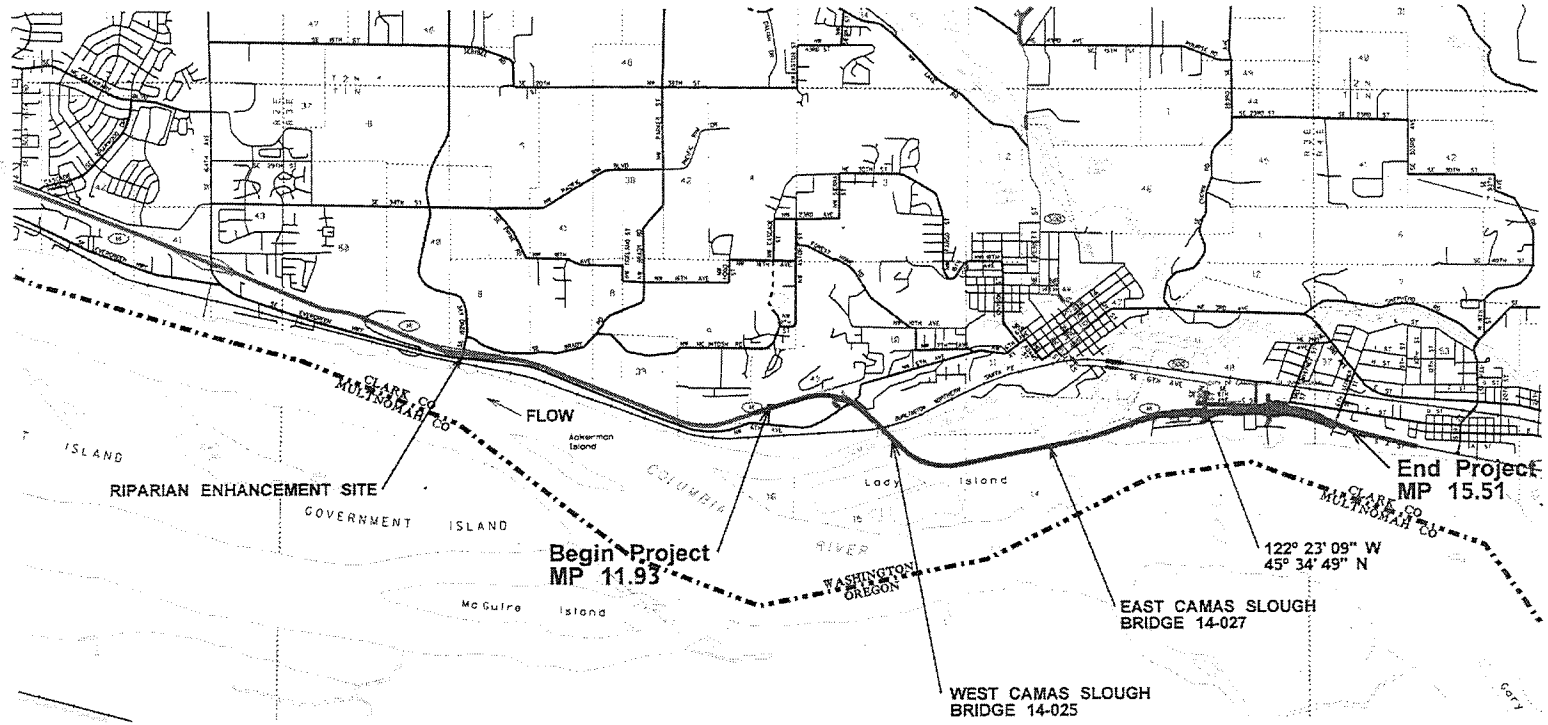
18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact The Governor's Office of Regulatory Assistance (ORA). People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341.
ORA publication number: ENV-019-09

Appendix A
JARPA Graphics

- Sheet 1 – Vicinity Map
- Sheet 2 – Wetland Buffer Impact Plan View
- Sheet 3 – Wetland Buffer Impact Cross Section
- Sheet 4 – Stream and Stream Buffer Impact Plan View (Camas Slough)
- Sheet 5 – New East Camas Slough Bridge Plan and Profile Views (Stream and Stream Buffers)
- Sheet 6 – Project Overview, Including 100-year Floodplain and Wetland Locations
- Sheet 7 – Summary Impact Tables
- Additional Sheets – Threshold Discharge Areas (TDAs)

T. 1N. R. 3E. W.M.
T. 1N. R. 4E. W.M.



IMPROVE HIGHWAY SAFETY AND MOBILITY

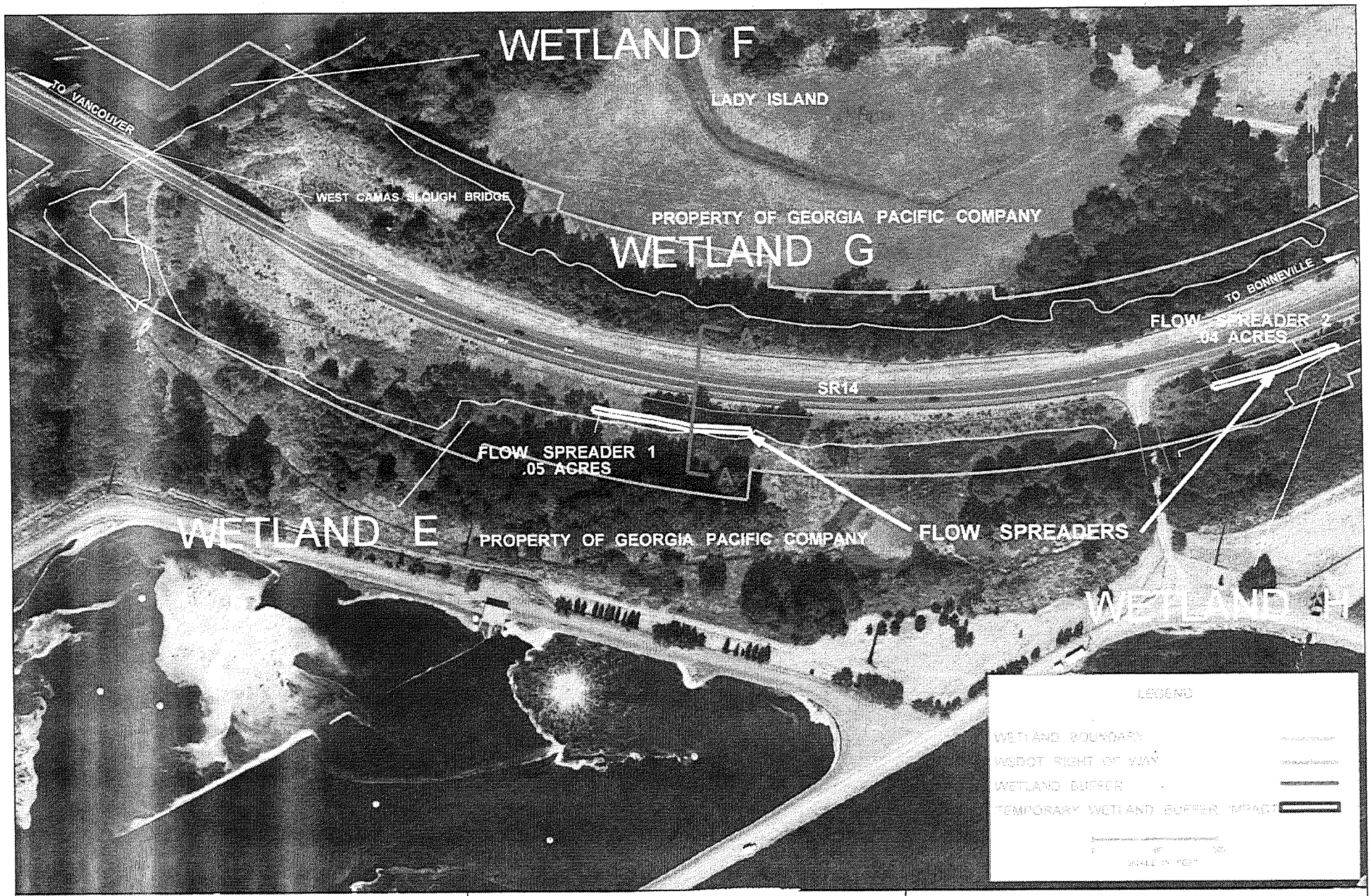
SR 14 CAMAS TO WASHOUGAL
ADD LANES AND BUILD INTERCHANGE PROJECT

SR-14 MP 11.93-15.51

CORPS REFERENCE NUMBER
CLARK COUNTY
CITIES OF CAMAS AND WASHOUGAL
COLUMBIA RIVER / CAMAS SLOUGH
SEPTEMBER 18 2009

Washington State
Department of Transportation

Sheet 1 of 7



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SEPTEMBER 18 2009

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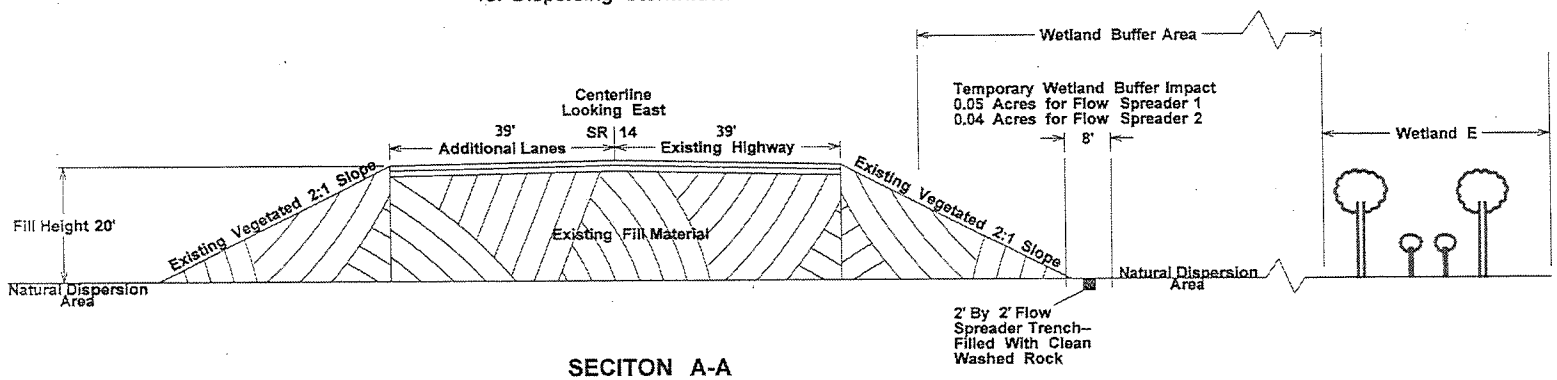
Department of Transportation

Sheet 2 of 7

Temporary Wetland Buffer Impacts On Lady Island

From Construction of
Flow Spreader Trench
for Dispersing Stormwater



SECITON A-A

IMPROVE HIGHWAY SAFETY AND MOBILITY

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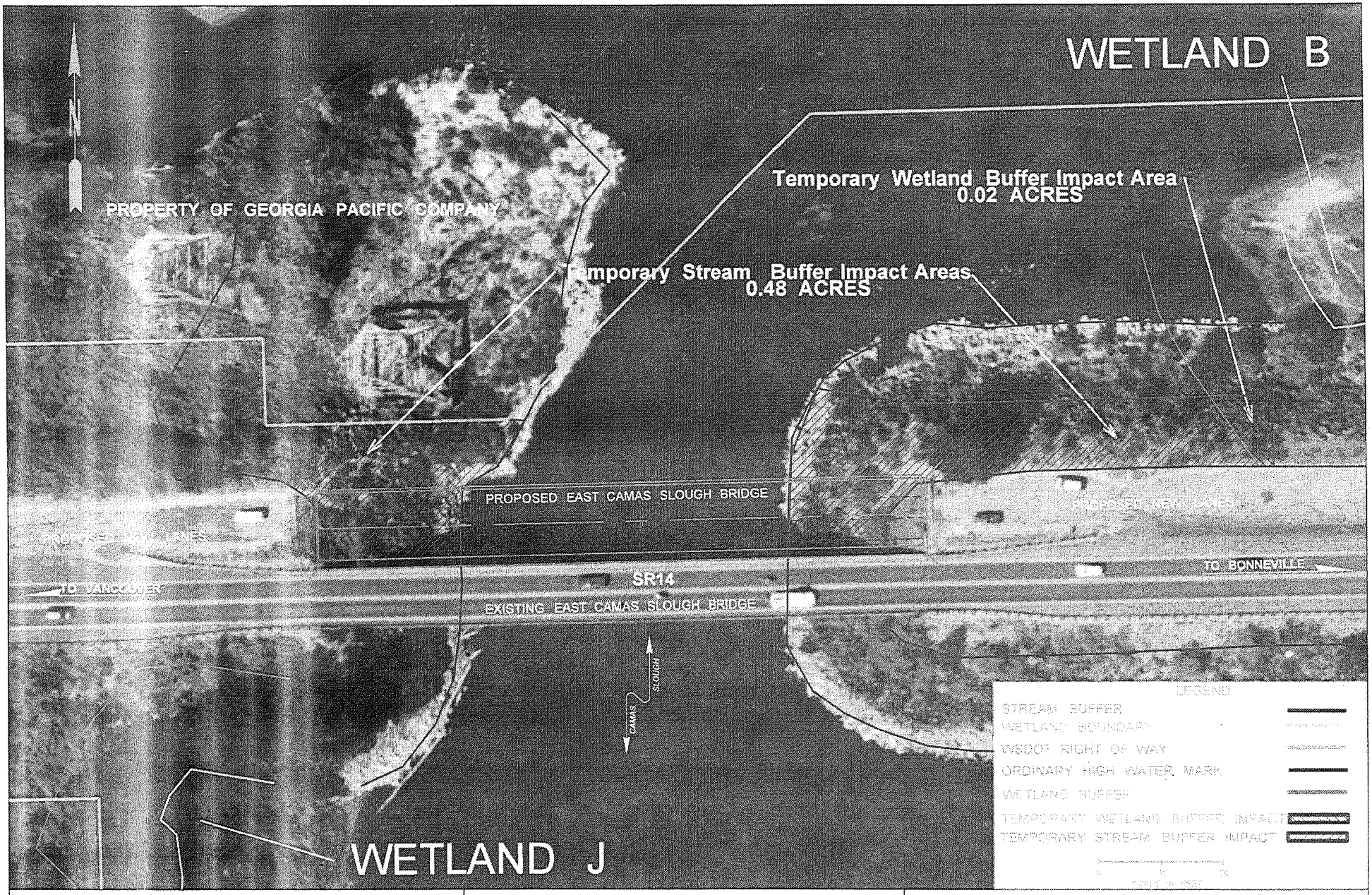

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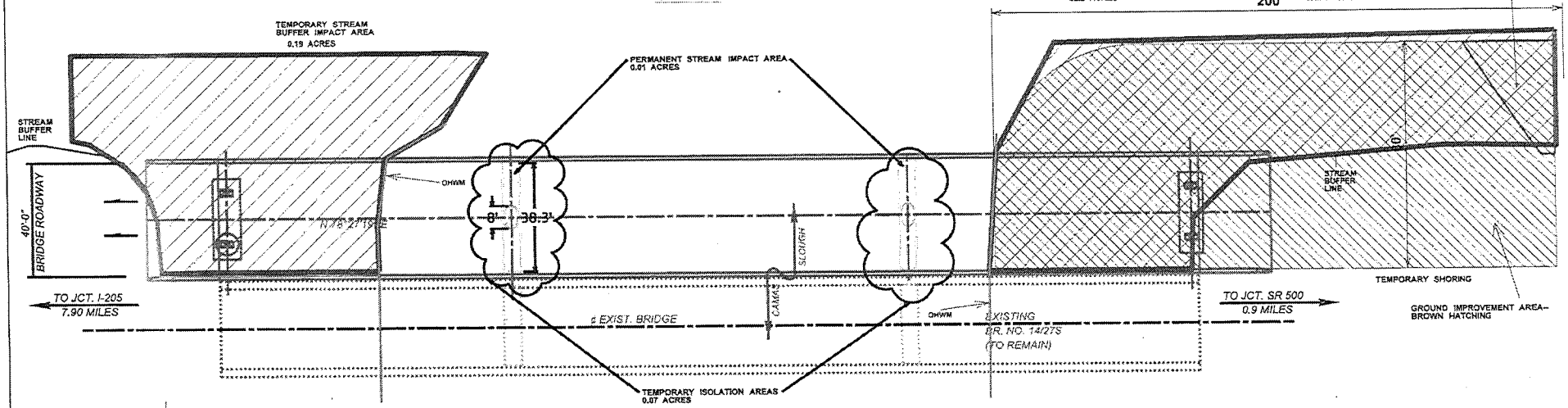
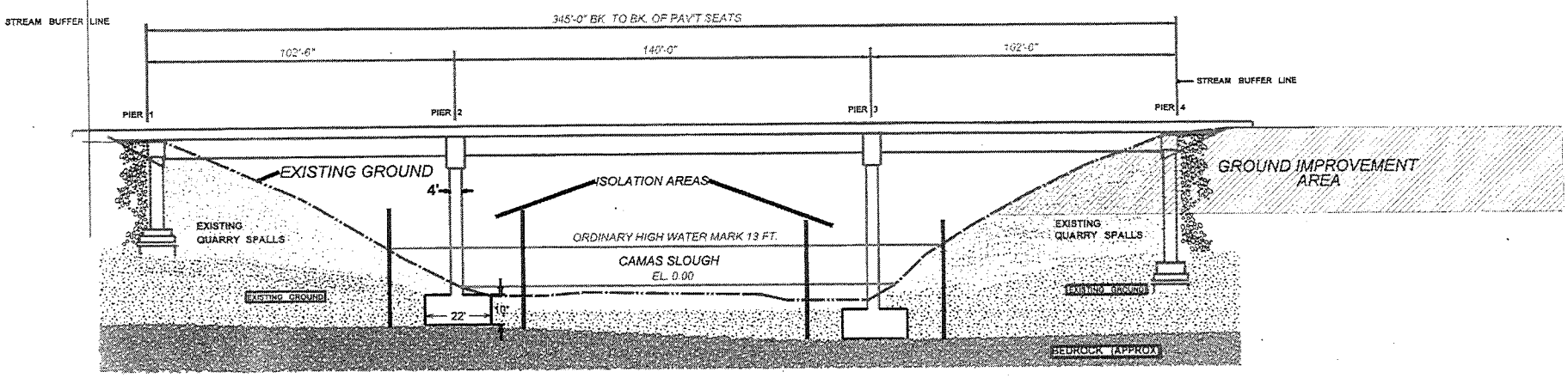
Department of Transportation

PROSED SR14 EAST CAMAS SLOUGH BRIDGE

PLAN

ALL WITHIN WSDOT RIGHT OF WAY





PROPOSED BRIDGE PROFILE

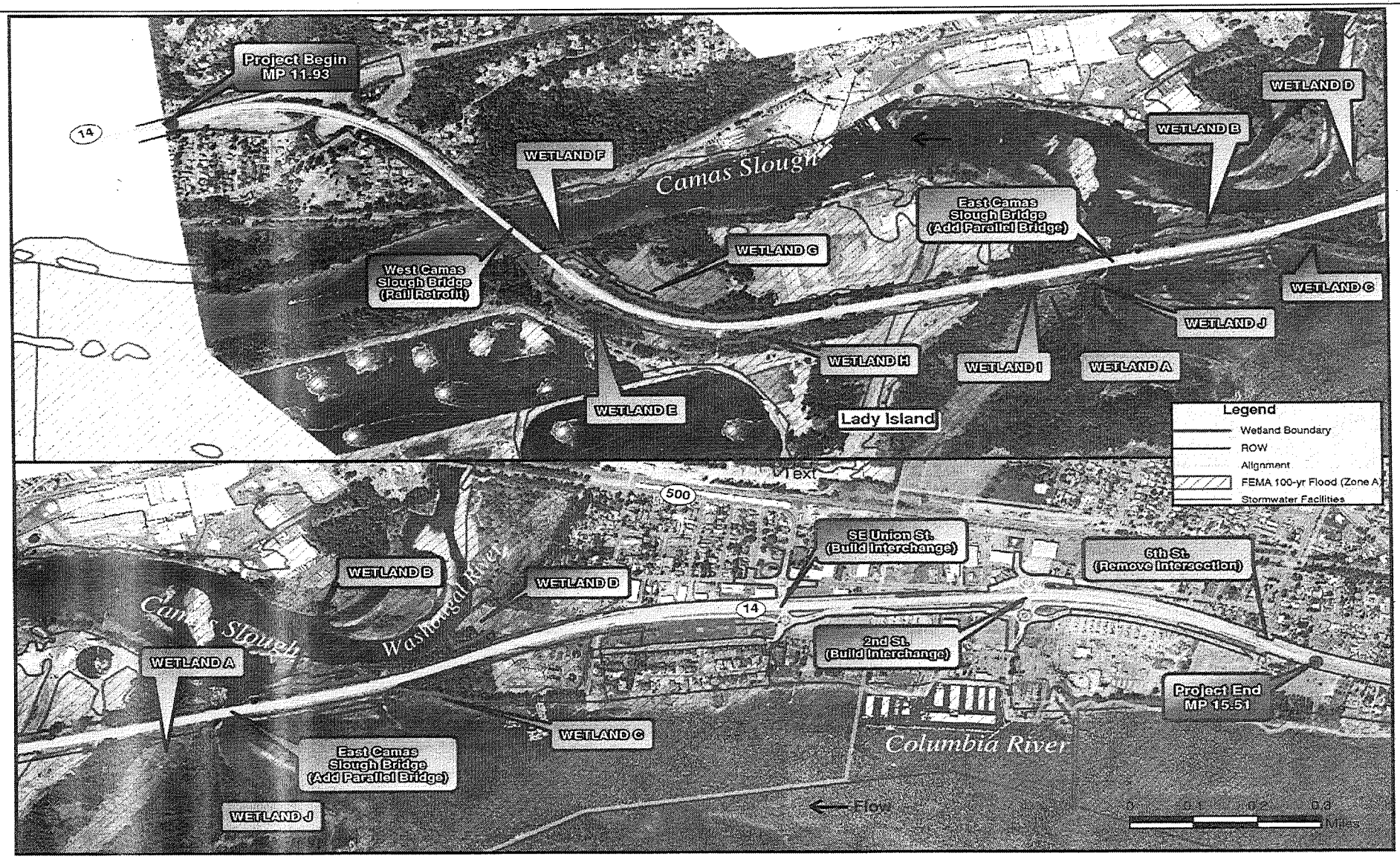
LOOKING NORTH

0 25 50

SCALE IN FEET

HORIZONTAL AND VERTICAL SCALE

IMPROVE HIGHWAY SAFETY AND MOBILITY SR 14 CAMAS TO WASHOUGAL ADD LANES AND BUILD INTERCHANGE PROJECT SR-14 MP 11.93-15.51	CORPS REFERENCE NUMBER CLARK COUNTY CITIES OF CAMAS AND WASHOUGAL COLUMBIA RIVER / CAMAS SLOUGH SEPTEMBER 18 2009	Washington State Department of Transportation Sheet 5 of 7



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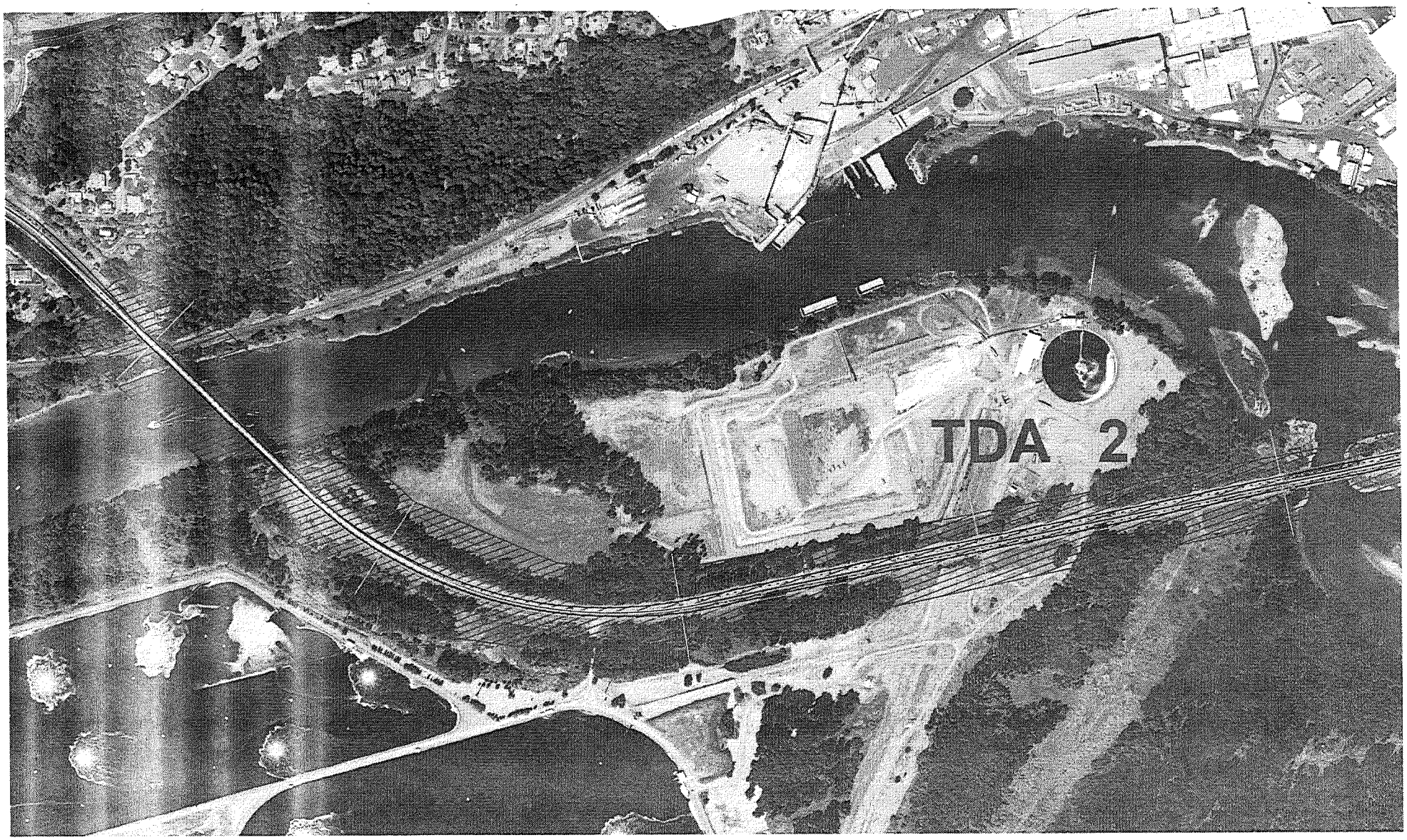
Stream Impacts

Stream	Permanent Impact Length (FT)	Permanent Impact Area (SF)	Temporary Impact Length (FT)	Temporary Impact Area (SF)	Indirect Impact Area (SF)	Permanent Buffer Impact Area (SF)	Temporary Buffer Impact Area (SF)
Camas Slough	38	432	100	5000	0	0	20784

Wetland Impacts

Wetland #	Wetland Rating	Permanent Impact Area (SF)	Temporary Impact Area (SF)	Indirect Impact Area (SF)	Permanent Buffer Impact Area (SF)	Temporary Buffer Impact Area (SF)
A	III	0	0	0	0	0
B	III	0	0	0	0	870
C	III	0	0	0	0	0
D	III	0	0	0	0	0
E	III	0	0	0	0	2080
F	III	0	0	0	0	0
G	III	0	0	0	0	0
H	III	0	0	0	0	1710
I	IV	0	0	0	0	0
J	III	0	0	0	0	0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Appendix B
Project Mitigation Memorandum

Washington State
Department of Transportation

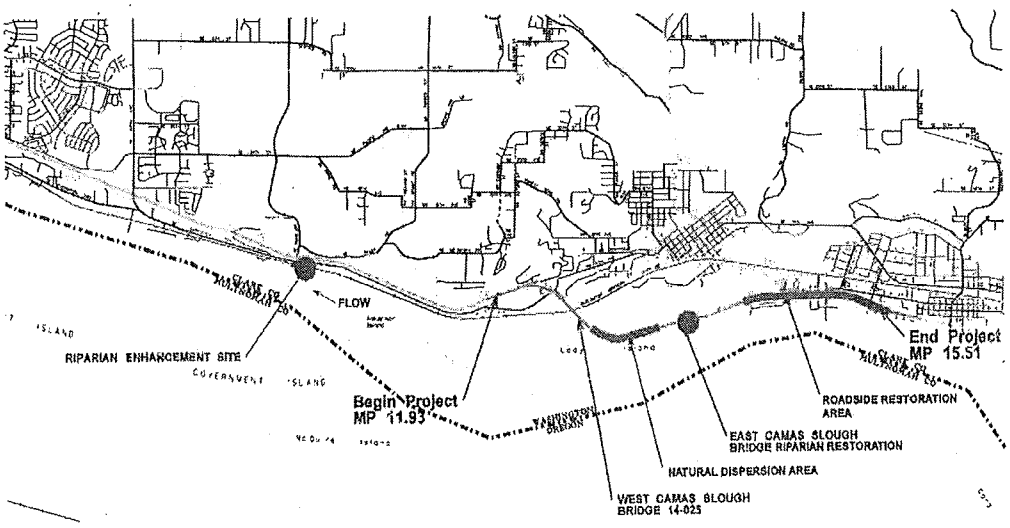
Memorandum

September 17, 2009

RE: SR-14 Camas Washougal – Add Lanes and Build Interchange Project
Critical/Sensitive Area Mitigation Summary

This memorandum summarizes the Washington State Department of Transportation's (WSDOT) current mitigation proposal for the SR-14 Camas Washougal – Add Lanes and Build Interchange Project in context of environmental commitments, best management restoration practices, and applicable portions of the current City of Camas Municipal Code, including Chapters 16.60 and 16.61.

Restoration work to replace and compensate for temporary impacts to wetland buffers and riparian/stream buffers, as well as for a small amount of permanent impact to the Camas Slough will be mitigated at various locations throughout and nearby the project corridor.



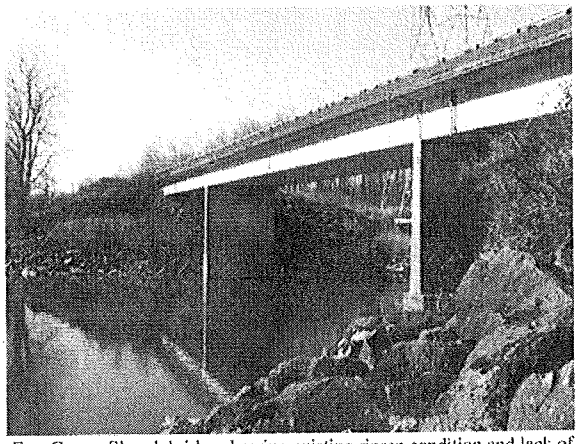
SR-14/ Camas-Washougal corridor - restoration and mitigation areas

Existing Conditions

Much of the project corridor traverses a highly disturbed industrial landscape that includes industrial wastewater facilities and major power line rights-of-way. The existing highway is constructed on an elevated embankment that crosses Lady Island and a portion of the confluence of the Washougal and Columbia Rivers (East Camas Slough Bridge vicinity). The existing embankment was constructed to a sufficient width to accommodate current SR-14 (2-lanes) and the proposed improvements (4-lanes), minimizing construction impacts to wetland and riparian resources on Lady Island and the crossings of Camas Slough.

Existing wide embankment and natural vegetation on Lady Island

Dense vegetation has developed on the elevated embankment and includes large cottonwood trees, big leaf maple, hazel, snowberry, and Western sword fern as well as dense stands of blackberry and other invasive species. Wet areas adjacent to the embankment are dominated by reed canarygrass but include isolated stands of Pacific and Sitka willow, red osier dogwood, and native emergent species. The elevated causeway and riverbanks associated with East Camas Slough Bridge area are primarily composed of riprap, which supports a small fringe of vegetation including introduced grass/forb species and Scotch broom. Vegetation throughout the corridor provides limited functions, primarily slope stabilization on Lady Island and buffering (visual and glare) between wetlands and the existing highway facility. Vegetation on the causeway and the banks of Camas Slough, in the proposed bridge location provides negligible function and is generally separated from aquatic resources by non-vegetated riprap.



East Camas Slough bridge showing existing riprap condition and lack of existing vegetation. New bridge will be immediately to the north (right) of the existing structure.

Additional functional characterization of existing wetlands, buffers, and other aquatic resources can be found in the final Wetland Assessment Report (WSDOT, 2009)

Anticipated Impacts

Confinement of project improvements to the existing wide roadway embankment and causeway has resulted in no direct permanent impacts to jurisdictional wetlands or associated wetland buffers. Construction access for stormwater system installation on Lady Island and seismic upgrades to the East Camas Slough Bridge and causeway will temporarily impact 4,660 square feet (0.11 acres) of category III wetland buffer by cutting or removing existing vegetation.

Wetland #	Wetland Rating	Permanent Impact Area	Temporary Impact Area	Indirect Impact Area	Permanent Buffer Impact Area	Temporary Buffer Impact Area
A	III	0	0	0	0	0
B	**III**	**0**	**0**	**0**	**0**	**870 Sq Ft**
C	III	0	0	0	0	0
D	III	0	0	0	0	0
E	**III**	**0**	**0**	**0**	**0**	**2,080 Sq Ft**
F	III	0	0	0	0	0
G	III	0	0	0	0	0
H	**III**	**0**	**0**	**0**	**0**	**1,710 Sq Ft**
I	IV	0	0	0	0	0
J	III	0	0	0	0	0
Total						**4,660 Sq Ft**

Construction of a second East Camas Slough Bridge will permanently impact 432 square feet (0.001 acres) of river channel area for the placement of two in-water piers and footings, and temporarily impact 20,784 square feet (0.48 acres) of regulated riparian/stream buffer. As noted above, most of the impacted riparian/stream buffer area consists of exposed riprap and sparse, non-native vegetation.

Stream	Permanent Impact Length	Permanent Impact Area	Temporary Impact Length	Temporary Impact Area	Indirect Impact Area	Permanent Buffer Impact Area	Temporary Buffer Impact Area
Camas Slough	38 LF	432 Sq Ft	100 LF	5,000 Sq Ft	0	0	20,784 Sq Ft
Total	**38 LF**	**432 Sq Ft**	**100 LF**	**5,000 Sq Ft**			**20,784 Sq Ft**

Off-Site Riparian Restoration
To offset minor potential in-stream habitat damage associated with the construction of the new East Camas Slough Bridge, WSDOT proposes to enhance 1.2 acres of riparian forest immediately adjacent to the Columbia River approximately 3 miles downstream from the project area. The proposed enhancement project will protect/preserve existing mature cottonwood trees and snags, mud banks, rock outcrops, large woody debris, and spring-fed sand and gravel beaches, and enhance shoreline riparian function by removing non-native invasive Himalayan blackberry and replacing with a dense native woody riparian plant community. Other site management work will include removal of trash along the Columbia River shoreline and boundary demarcation.

Riparian planting will consist of native woody species including, but not limited to, cascara, Western hazel, common snowberry, Indian plum, Oregon grape, and Western sword fern. Woody vegetation will be planted on 3-foot centers to create rapid soil cover and dense native plant communities. All plantings will be established/maintained for a period of at least 5 years as outlined in the performance management section of this document.

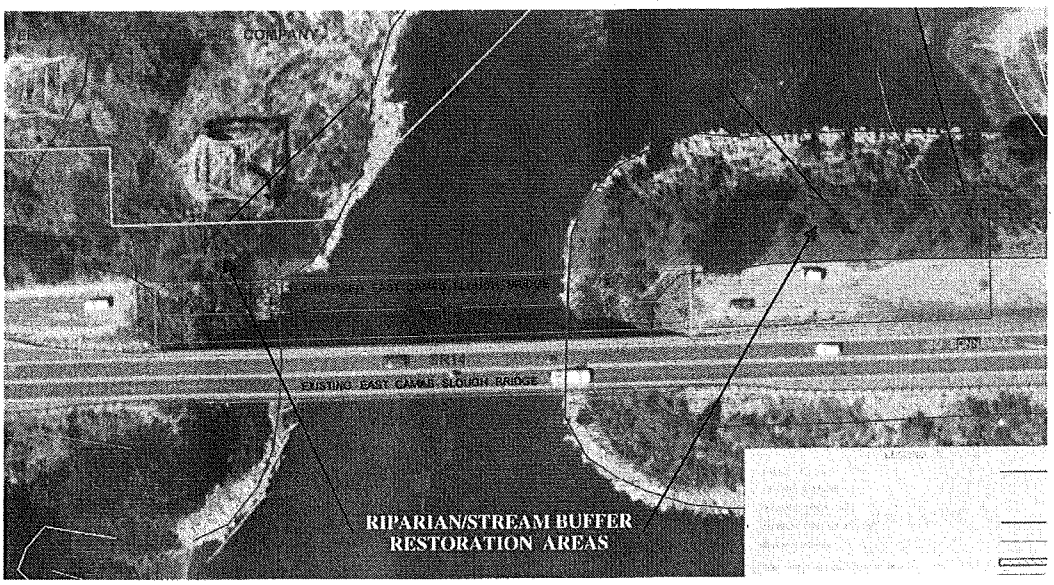
On-Site Wetland and Stream Buffer Restoration
The 0.48 acres of temporarily impacted riparian/stream buffer associated with the new East Camas Slough Bridge construction will be revegetated on-site as part of the larger roadside restoration planned for disturbed areas of the project corridor. Standard WSDOT restoration methodologies include:

- **Vegetation management** (removal of invasive or nuisance species including Scotch broom and Black Locust),
- **Soils restoration** (importing and placement of native topsoil from an off-site source and compost blankets), and
- **Vegetation restoration** (installation and establishment of dense native plant communities on disturbed sites).

Riparian/Stream buffer restoration work will be to areas determined to be plantable and sustainable by WSDOT restoration specialists and may exclude large exposed sections of the existing riprap embankment. Proposed water quality treatment for the project corridor, targeted on-site vegetation restoration, and the off-site riparian restoration area are anticipated to more than compensate for the minor temporary loss of vegetation within regulated riparian/stream buffers. Proposed species for riparian/stream buffer restoration areas include Scouler's willow, red osier dogwood, elderberry, and bigleaf maple.

The 0.11 acres of temporarily impacted wetland buffer will be revegetated on-site as part of the larger roadside restoration planned for disturbed areas of the project corridor. Standard WSDOT restoration methodologies will be employed, as described in the

previous section. Proposed species for wetland buffer restoration areas include common snowberry cascara, Western hazel, Indian plum, Oregon grape, and Western sword fern.



Targeted riparian/stream buffer restoration areas at the East Camas Slough bridge.

Stormwater Treatment and Management – Natural Dispersion and Infiltration
The proposed stormwater management plan for the Lady Island section of SR-14 utilizes natural dispersion and infiltration techniques and existing hydrology flow paths, and avoids the construction of large water quality ponds and swales. Utilizing existing vegetated embankment areas, water will uniformly sheet flow from the pavement into the dispersion areas where it will infiltrate and become subject to numerous biological and chemical processes. Native vegetation is a major part of this methodology as it binds soil, provides surface roughness, promotes soil aeration and permeability, improves soil structure, and adds a consistent supply of organic matter to the soil profile.

To fully utilize the infiltration potential and associated hydrologic storage and water quality benefits of the natural dispersion areas, WSDOT will enhance upland embankments adjacent to SR-14 on Lady Island through a multi-step process.

1. Mark and protect existing native trees and shrubs. Native vegetation will be preserved to the greatest extent practicable. Intensive vegetation management will be utilized to eliminate blackberry, scotch broom, black locust, and other invasive species and minimize their re-growth. Dead material and any re-growth will be removed from the site to produce a bare soil condition. WSDOT utilizes Integrated Vegetation Management (IVM) techniques in all of its environmental restoration and mitigation sites. Effective techniques used to minimize the use of herbicides

and maximize weed control include the technique termed "cut stump treatment", which uses hand methods to cut vegetation and stump-specific application of herbicides applied with daubers or squirt bottles. All herbicide use will follow label instructions as WSDOT's chemical treatment guidelines.

Wetlands within the enhancement area will be mowed and treated, with the dead thatch left in place for erosion protection and to act as natural mulch.

2. Apply compost blankets to all upland areas. Two-stage compost blankets will be applied to all treated upland areas (excluding dense stands of native vegetation) to improve soil structure and fertility, retain moisture, and to provide erosion control. The first 3 inches of compost will be placed and tilled into the existing topsoil to a depth of at least 6 inches. An additional 3 inch compost blanket will be placed and left on the surface.

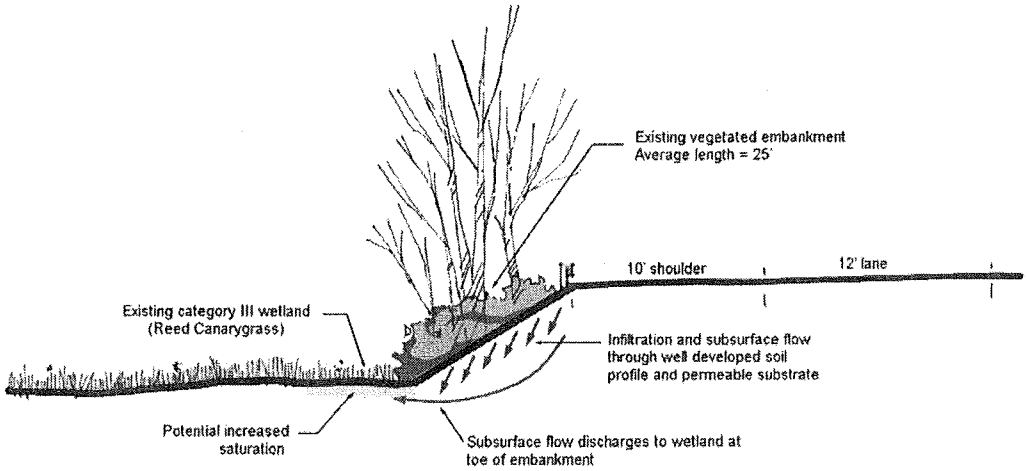
3. Apply bark mulch to all natural dispersion upland planting areas. Bark mulch serves to protect the surface from erosion, retain moisture, and to suppress weed growth around newly installed plant material.

4. Install dense native vegetation using IVM techniques (close spacing to produce quick cover and minimize weed growth) in all bark mulch areas. Species may include common snowberry, cascara, Western hazel, Indian plum, Oregon grape, and Western sword fern.

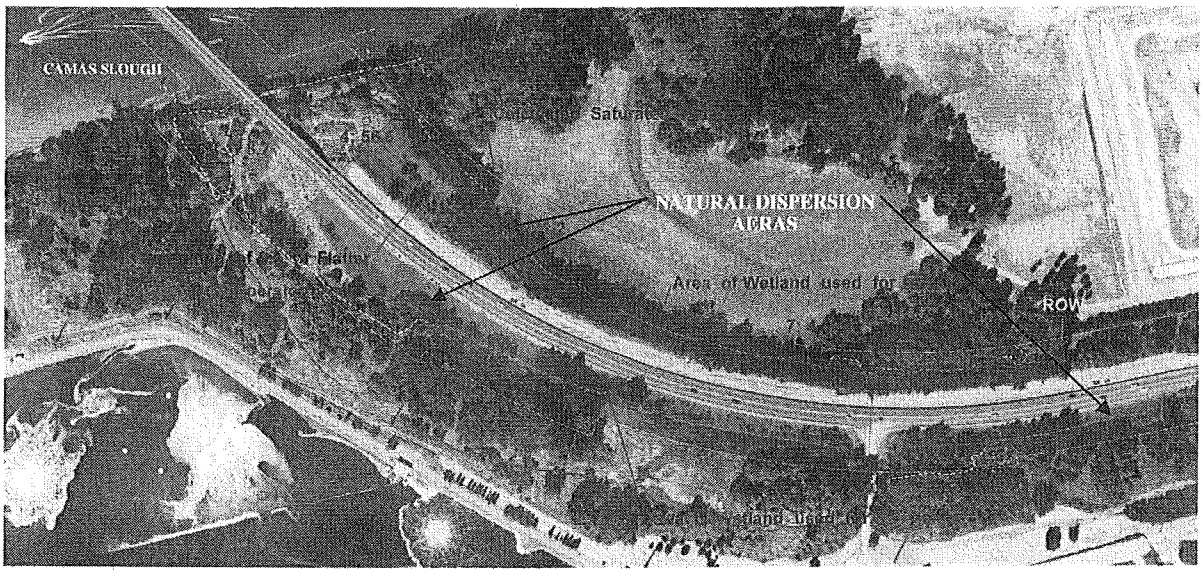
   Treated wetland sections of natural dispersion areas will be planted with Pacific willow, Sitka willow, red osier dogwood, and Oregon ash.

Existing vegetation in upland sections of the natural dispersion areas. Noxious and non-native vegetation will be removed, soils enhanced, and the slope replanted.

Existing vegetation in the wetland sections of the natural dispersion areas. Noxious and non-native vegetation will be removed and the wetland area converted to scrub shrub and forest.



Natural dispersion area concept



Natural dispersion areas on Lady Island

Roadside Restoration
WSDOT will restore the function and character of roadsides disturbed as a result of project construction. Roadside restoration activities may include vegetation protection, soils restoration (described elsewhere in this document), vegetation management, temporary drip or low volume irrigation systems for establishment, vegetation installation, and landform.

This project will use a variety of treatment methods to restore roadside environmental function and roadside character consistent with WSDOT *Roadside Classification Plan* policy. Functions disturbed by project construction that will be restored and enhanced include permanent erosion control, soil water storage, light and glare buffering of sensitive areas, visual screening, blending of structures with the surrounding community, noise reduction perception, community gateways, and corridor continuity.

Most restored vegetation will be native species including common snowberry, cascara, Western hazel, common snowberry, Indian plum, Oregon grape, Vine Maple, Red Flowering Currant, and Western sword fern. In the vicinity of the interchange and within the urban gateways of Camas and Washougal, naturalized or select hardy ornamental species may be used including Autumn Purple and Marshall Seedless ash, quaking aspen, sugar maple, Amur maple, incense cedar, Boston ivy, rugosa rose, compact Oregon Grape, and cotoneaster evergreen groundcover.

Plant Establishment and Performance Standards
WSDOT will establish and maintain all restored or enhanced areas including roadside restoration, wetland buffer, riparian/stream buffer, natural dispersion areas, and riparian enhancement areas. The establishment period will be for 5 years (growing seasons) following acceptance of initial planting, or until all performance standards are met. WSDOT protocol includes a stable funding source for the establishment of environmental restoration and mitigation sites, including an in-house maintenance crew dedicated to specialized environmental management.

The performance standards described below provide benchmarks for measuring achievement of the goals and objectives of the mitigation site. Mitigation activities are intended to meet these performance standards within a specified time frame. The performance standards are based on functional characteristics described in *Method for Assessing Wetland Functions* (Hruby et al. 1999). These function-based performance standards measure structural attributes that provide a reasonable indication of wetland functions. Methods to monitor each performance standard are described in general terms. Monitoring of mitigation success standards begins immediately following initial planting with the collection of baseline data and initial (year 1) survival standards.

Objective 1: Enhance environmental function of wetland buffer, riparian/stream buffer, natural dispersion, and off-site riparian enhancement areas.

Performance Standards	***Monitoring Methods***
1A Success Standard The environmental mitigation sites will be planted in accordance with the mitigation memorandum and roadside restoration plan sheets.	As-built plans documenting that the mitigation sites have been planted according to the planting plan will be submitted within year 1.
1B Success Standard At monitoring year 1, there will be a minimum survival rate of 90% of woody trees and shrubs in area identified as: *wetland buffer, riparian/stream buffer, natural dispersion areas, and riparian enhancement areas.*	*Conduct major plant assessment of contract-installed vegetation (plant counts based on as-built plans).*
1C Success Standard At monitoring year 3, there will be a minimum density of native trees and/or shrubs in wetland buffer, riparian/stream buffer, natural dispersion areas, and riparian enhancement areas as follows: • *minimum density of 400 living native trees per acre (where installed)* • *minimum density of 4,000 living native shrubs per acre*	*Use current monitoring protocols (see Monitoring Plan) to determine density (number of living trees per acre) and species diversity in scrub shrub, forested, and buffer areas.*
1D. Success Standard *(final year monitoring)* At monitoring year 5, there will be a minimum density of native trees and/or shrubs in wetland buffer, riparian/stream buffer, natural dispersion areas, and riparian enhancement areas as follows: • *minimum density of 300 living native trees per acre* • *minimum density of 3,000 living native shrubs per acre*	*Use current monitoring protocols (see Monitoring Plan) to determine density (number of living trees per acre) and species diversity in scrub shrub, forested, and buffer areas.*

Objective 2: Promote the development of native woody plant communities by limiting the growth and spread of noxious and nuisance vegetation.

Performance Standards	*Monitoring Methods*
2A. Performance Standard Conduct a pre-construction survey of the existing extent of invasive vegetation including Reed Canarygrass, Blackberry Species, Black Locust,	*Provide photographic and map (GPS or notations on plan sheets) documentation of existing stands of Reed Canarygrass, Blackberry species, and Japanese Knotweed.*

and Japanese Knotweed, to establish a baseline for invasive species monitoring and management at years 1, 3, and 5.	
2B. Performance Standard At monitoring years 1, 3, and 5, Invasive Species will be managed as follows: *The aerial extent of Reed Canarygrass, Blackberry Species, Black Locust, and Class A noxious weeds will not exceed 15% in wetland buffer, riparian/stream buffer, natural dispersion areas, and riparian enhancement areas. Total weed cover will be measured individually per mitigation type and not as a combined total across all mitigation types.* *Japanese Knotweed will have a 0% tolerance, and will be treated at the first sign of infestation.*	*Observe and map (notations on plan sheets) locations of Reed Canarygrass, Blackberry Species, Black Locust, and Japanese Knotweed as part of annual vegetation surveys using current monitoring techniques. For larger stands, GPS measurements of stand perimeters will be provided to measure the extent of change over time. Observations will form the basis of on-going site management and integrated vegetation management activities.*

The mitigation measures described in this document will maintain and enhance roadside and environmental function in the project corridor, and will satisfy the mitigation requirements for applicable critical requirements area and environmental permit conditions. WSDOT fully expects that the function following construction and mitigation will meet or exceed existing function of disturbed resources. Please don't hesitate to contact me at 360-905-2086, or at corletd@wsdot.wa.gov, if you have any questions or need additional information regarding the proposed comprehensive mitigation for this project

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