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MEMORANDUM

DATE: June 29, 2011

TO: Kristen Stallman & Sam Haffner – Oregon Department of Transportation

FROM: Brian Cook, Christine Maynard & Wendy Wente (MB&G)

SUBJECT: Historic Columbia River Highway State Trail National Scenic Area Permit - Natural Resource Elements Conflict Memorandum

Background

ODOT has been charged with working with Oregon Parks and Recreation Department (OPRD), the State Historic Preservation Office (SHPO) and Travel Oregon to preserve, enhance and reconnect the Historic Columbia River Highway (HCRH). 62 of the original 73 miles of the HCRH are now open to travel either by motor vehicle or by foot and bicycle. The Historic Columbia River Highway State Trail Plan (Plan) serves as a master plan for the final 11 miles of State Trail that await reconnection.

The proposed trail connection project (Project) is located between Wyeth (Exit 51, Interstate [I]-84) and Ruthton Park, at the west end of Hood River, within the Columbia River Gorge National Scenic Area (CRGNSA). As such, a National Scenic Area Permit (NSAP) administered through the Hood River County Zoning Ordinance, Article 75 will be required.

The purpose of this Natural Resource Elements Conflict Memorandum (NRECM) is to comply with the NSAP by identifying significant natural resource (SNR) (i.e. priority habitats, sensitive plant and wildlife sites and areas) conflicts with the proposed preliminary 11 mile trail alignment and associated elements (survey corridor). Where possible, the greater Project area was also evaluated to allow the design team to consider alternative trail alignments and elements, and weigh the natural resource impacts of these alternatives with other Project goals.

This report is supplemented by a Geographic Information System (GIS) database and accompanying maps (see attached).

Methods

Preliminary data gathering

Prior to the April 25 and 28, 2011, May 2, 2011, and June 10 and 13, 2011 field investigations, MB&G biologists reviewed existing information on SNR sites and areas. Species listed in the Plans "Sensitive Wildlife and Plant Species, Species with Historic or Suspected Range in the Columbia River Gorge National Scenic Area," were reviewed for potential to occur within the Project corridor based on habitat requirements and historic range. This list was supplemented by a 2010 Oregon Biodiversity Information Center

(ORBIC) report listing 29 known or expected occurrences of special-status fish, wildlife and botanical resources in the vicinity of the Project (ICF 2011). These species were then correlated to the priority habitats listed in the "Priority Habitats Table," within Hood River County (HRC) Zoning Ordinance Article 75, NSA National Scenic Area (Article 75) (HRC 2011). See Table 2 for a summary of the SNRs occurring within or adjacent to the Project survey corridor. See Appendix A for the comprehensive special-status species list compiled for the Project.

Biologists reviewed the preliminary trail alignment figures (Quatrefoil 2010) and aerial photography (NAIP 2009), Oregon Biodiversity Information Center (ORBIC) data (ICF 2011), and U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping (USFWS 2010) to assess potential priority habitats prior to the field investigation. Two meetings were held with ODOT, MB&G and the U.S. Forest Service (USFS) April 25, 2011 and June 7, 2011 to discuss the potential trail conflicts and receive feedback on known SNR's in the Project vicinity. The USFWS was contacted June 2011 to assess the potential project conflicts with known northern spotted owl (*Strix occidentalis caurina*) habitat (Leal, David and Tuerler, Brodgette, pers. comm., 2011)

Digital photographs were taken of SNRs throughout the Project corridor during the field investigations. Photos of representative SNRs are included in Appendix B.

Field Investigation

MB&G biologists conducted field investigations within the 11 mile Project corridor on April 25 and 28, 2011, May 2, 2011, and June 10 and 13, 2011 to identify locations of SNR areas or sites (i.e. priority habitats and rare plant and wildlife sites). SNRs encountered during the field investigation were recorded using Trimble hand-held resource grade Global Positioning System (GPS) units. Where GPS reception was unavailable, SNRs were hand-drawn on field maps and digitized using ArcMap software, aerial photography, and Project-specific topographic data (2-foot intervals) back in the office.

All SNRs mapped in the attached figures were field verified; however, surveys for sensitive plants associated with SNRs Cl-2, Cl-3, CL-4, and CL-5 (see Table 1 for the SNR labeling key) only occurred during the June field investigation.

Wetland boundaries and Ordinary High Water Lines (OHWL) for ponds, lakes, perennial or fish bearing streams, and intermittent or ephemeral non-fish bearing streams were determined based on observations of seasonal scour, sediment textural changes, and vegetation community changes. Wetlands documented within or adjacent to the Project corridor were not delineated during the field investigation and as such are for preliminary planning reference only.

Surveys were not conducted at times to encompass all sensitive plant survey windows and are not intended as a comprehensive inventory of sensitive plant occurrences within the survey corridor. Field investigations were divided into two periods approximately one month apart to cover the flowering period of as many species as possible. Although occurrences of species with blooming periods that do not correspond to the timing of the field investigations are not documented in this memo, all observed suitable habitats for sensitive plant species were documented.

Areas skipped during the April, May, and June 2011 field investigations included areas identified during preliminary data gathering as lacking priority habitats, priority habitats lacking desirable habitat characteristics (e.g. roadcut cliffs), suitable habitat for identifiable rare plants, or inaccessible areas.

Mapping

All SNRs observed during the field investigation were mapped and appropriate buffers were digitized for each SNR based on criteria outlined in Article 75 (HRC 2011) (Table 1). SNRs were labeled sequentially as they were intersected moving west to east across the survey corridor. Each label includes SNR type and successive feature number (e.g. CL-1 is the first Cliff feature encountered as the surveyors moved west to east). See Table 2 for specific nomenclature and summary information for each SNR identified within the survey corridor.

Table 1. Significant Natural Resource Buffers*

Feature ID Prefix	Significant Natural Resource	Buffer width
AN	General Wildlife Observations	200 ft
	Peregrine falcon (*Falco peregrinus*) nest site	640ft
CL	Cliffs	200 ft
MF	Mature Forest	200 ft
OW	Oregon White Oak Woodland	200 ft
PL	Rare Plant Observations	200 ft
SL	Snags and Logs	200 ft
ST	Intermittent or ephemeral non-fish bearing streams	50 ft
	Perennial or fish bearing streams	200 ft
TA	Talus	200 ft
WL	Wetlands	200 ft

*Source: HRC 2011, ODOT 2000, Nordstrom and Milner 1997

Significant Natural Resource Conflicts Analysis

The information below details specific SNR conflicts within the proposed Project corridor as identified during the April, May, and June 2011 field investigations. Summary information for potential and confirmed SNRs including site or area identifier (ID), reference map page for each resource, resource habitat subtype (if applicable), conflict type, size of the area occupied by each resource within the corridor, and any specific species observations are listed in Table 2.

Water Resources Conflicts

The proposed Project corridor could impact approximately 5.1 total acres of wetland buffer and 0.2 acre of wetland. These wetland impacts include approximately 0.16 acre of Palustrine Emergent (PEM) wetland and approximately 0.01 acre of Palustrine Forested (PFO) wetland.

The proposed Project corridor will impact 8.3 total acres of stream buffer and 0.11 acre of stream channel. The stream channel impacts include approximately 0.10 acre of perennial stream, approximately 0.01 acre intermittent stream, and approximately 0.01 acre of ephemeral stream.

Water Resource Mitigation Recommendations

Wetlands (WL-1, WL-6, WL-7, and WL-8, WL-10, and WL-11) occur in conflict with the proposed Project. Article 75 indicates the preferred mitigation alternative is trail alignment modification to avoid direct impacts to all water resources and/or riparian areas (buffers). If impacts are unavoidable, then restoration is the preferred alternative; however, no historic wetland sites are apparent within the vicinity of the corridor. Mitigation for impacts to wetlands and wetland buffers within the Project corridor could be offset by wetland creation (2:1), restoration (3:1) or enhancement (4:1).

The majority of the soil mapping units in the vicinity of the corridor are well-drained (no hydric mapping units) (Green 1981), limiting hydrology retention; however, wetland WL-11 is located on a flat, broad terrace. A review of historic aerial photography for the vicinity of WL-11 may document potential wetland loss in the area and indicates an opportunity for wetland restoration and/or creation. Wetlands WL-1, WL-4 and WL-11 present substantial enhancement opportunities due to the lack of climax species and/or current colonization of noxious weeds within the wetland. This wetland may also provide rehabilitation opportunities for impacts to sensitive plant areas and site impacts given the occurrence of dense sedge (*Carex densa*) (PL-11) within the wetland.

Wetland WL-10 is a vernal pool; a unique and fragile wetland type. This wetland occurs within the General Management Area (GMA) zoning designation and impacts will require in-kind mitigation. A roadway currently exists associated with the proposed alignment in the vicinity of this feature and impacts to this wetland adjacent to the roadway should be strictly avoided given the complexity of wetland mitigation for associated impacts.

Stream ST-1 is a perennial seep arising within the Project corridor (Map 2). Adjusting the trail alignment to the north within the corridor could avoid any direct impacts to this feature. Additionally, Stream ST-9 is an intermittent feature cascading down a steep talus slope into the Project corridor from the south. This feature infiltrates into the substrate soon after it enters the corridor. As such, constructing the trail at the northern extent of the corridor, occupying the existing sidewalk, will likely avoid any adverse impacts to the stream and will concurrently avoid impacts to documented Larch Mountain salamander (*Plethodon larselli*) habitat in the vicinity (AN-3, TA-18, and TA-19).

All remaining stream features mapped within the Project corridor will require adequate structures for trail crossings. Current plans indicate that the proposed Project would avoid major stream impacts through clear span bridge construction; however, streams ST-6 and ST-11 are intermittent or ephemeral features which could require in-water work (IWW) if culvert installation is proposed. Restoration of the stream channel upstream and downstream from the culvert, and restoration and revegetation of impacted stream banks will likely mitigate for impacts associated with IWW within these features. These activities will likely also mitigate for any buffer impacts. Additionally, substantial restoration opportunities occur associated with the removal of invasive species and revegetation of the northern riparian zone of Warren Creek (ST-7).

Sensitive Plant and Wildlife Resource Conflicts and Mitigation Recommendations

8.3 acres of plant and/or wildlife areas (wetlands, riparian stream buffers, Cliffs, Talus, Snags/Logs, Oregon White Oak Woodland, and Mature Forest) were identified within the survey corridor. 34 acres of plant and/or wildlife site or area buffers were also identified within the survey corridor.

The preferred alternatives for impact mitigation outlined in Article 75 include adjusting the trail alignment to avoid direct impacts to all sensitive plant and wildlife sites and areas, and timing construction to avoid work during the time of year when wildlife species are sensitive to disturbance (e.g. key migratory bird nesting periods, etc.). In addition, modifications to buffer widths in conflict with the Project corridor could be approved by the Hood River County Planning Director. As such, we recommend performing the Article 75 Practicable Alternative Test for all SNRs and entering into consultation with the Director prior to the development of the site plan.

Specific mitigation recommendations are listed below for each plant and wildlife area, site or buffer conflict area description.

Sensitive Plant Sites

MB&G recorded 12 confirmed observations of rare plants including Long-bearded Hawkweed (*Hieracium longiberbe*) (PL-1, PL-2, PL-3, PL-4, PL-6, PL-7, PL- PL-8, PL-9, PL-12, and PL13), cliff paintbrush (*Castilleja rupicola*) (PL-4 and PL-5), and dense sedge (*Carex* densa) (PL-11) within or adjacent to the survey corridor. Additionally, a population of Smooth-leaf Douglasia (*Douglasia laevigata*) (PL-10) is known to occur in the vicinity of Mitchell Point (Moore, Angie, pers. comm., 2011); however, no observations of this species were made within or adjacent to the Project corridor during the April, May, or June field investigations.

Sensitive Wildlife Sites

Four confirmed observations of sensitive wildlife including osprey (*Pandion haliaetus*) (AN-1) pileated woodpecker (*Dryocopus pileatus*) (AN-2), Larch Mountain salamander (AN-3), and Peregrine falcon (AN-4) were made within or adjacent to the Project corridor during the April and May, 2011 site investigation.

Direct impacts to Peregrine falcon (AN-4) include potential disturbance during the construction of the tunnel through Mitchell Point. Additional impacts to the nest site buffers will also occur and require mitigation. Recent research by the Washington Department of Fish and Wildlife (WDFW) indicates that peregrines eyries in the Gorge need buffer protection from February 1 - July 15. As such, conflict avoidance mitigation should include a construction timeline that attempts to avoid work within the buffer for AN-4 during this time period.

Direct impacts to Larch Mountain salamander (AN-3) could be avoided during trail design development by avoiding direct impacts to talus areas and limiting the clearing of vegetation in the vicinity of talus. If talus is disturbed or vegetation is removed in the vicinity of known populations of Larch Mountain salamander, mitigation could include the rehabilitation of degraded habitat by placement of Large Woody Debris (LWD) on talus slopes and strategic vegetation planting adjacent to targeted talus slopes.

Project impacts to pileated woodpecker could be reduced by avoiding or reducing impacts to snags and mature forests; key habitat elements for this species. Additionally, available habitat for this species would ultimately be increased through habitat rehabilitation efforts associated with snag and log and mature forest mitigation measures.

Cliffs

Impacts to cliffs will likely be minimized through design modifications to avoid cliffs; however, the proposed Project would directly impact cliff habitat associated with the proposed tunnel through Mitchell Point (CL-23), and the construction of several observation points (CL-8 and CL-10). The Project corridor conflicts with a total of 16.2 acres of cliff buffers.

Given the limited use of the forested cliffs by sensitive species, clearing of vegetation during the construction of the trail in the vicinity of forested cliffs (particularly wet cliffs and bluffs) could be used to restore suitable habitat for several sensitive plant species that prefer this habitat type (e.g., Barrett's penstemon, long-beard hawkweed, Howell's, daisy). As such, proposed strategic clearing around targeted cliffs would likely create habitat for sensitive plant species and mitigate for cliff habitat and cliff buffer impacts.

Additional mitigation strongly supported by the USFWS for direct impacts to sensitive plant sites and areas as well as sensitive plant buffer impacts includes plant salvage and relocation within the trail impact area prior to construction (Dobson, Robin, pers. comm., 2011). The Columbia Gorge Ecology Institute provides programs such as *Science in*

Action to engage youth in field-based education and restoration projects. Coordination with this type of organization may provide ODOT with a cost effective collaborative method for reducing Project conflicts.

Mature Forest

The Project conflicts with 3.4 acres of mature forest habitat and 4.9 acres of mature forest habitat buffer. Project impacts to this habitat may include mature tree cutting, understory removal, and temporary wildlife disturbance due to construction activities. Mitigation for potential impacts to the mature forest habitat could include mapping individual mature trees and designing the trail route to minimize tree removal in these areas, retaining the largest trees within the stand, retaining snags when feasible, and rehabilitating degraded mature forest within or adjacent to the survey corridor. Rehabilitation could include noxious weed removal and revegetation targeting the eventual development of old-growth forest species assemblages.

Oregon White Oak Woodland

One Oregon white oak woodland habitat area occurs within the Project corridor (OW-1, 0.4 acre). Conflicts associated with this habitat include the permanent reduction in habitat area caused by the construction of the trail surface. Additionally, the Project corridor conflicts with 0.7 acre of Oregon white oak woodland buffer. Mitigation for impacts to this habitat and its buffer could include habitat restoration through the removal of noxious weeds (NX-20) and revegetation at the western extent of the habitat area.

Snags and Logs

The Project conflicts with two concentrated areas totaling approximately 0.2 acre of snags (standing dead wood) and logs (downed dead wood) (SL-2, and SL-3). Project conflicts directly associated with areas of concentrated snags and logs are primarily located within or adjacent to MF-2. Direct Impacts to SL-2 can be offset by rerouting the proposed trail alignment to the south around the concentration of snags.

The project corridor conflicts with 2.8 acres of buffer associated with snags and logs. A portion of the buffers for SL-1, SL-2 and SL-3 occurs within the Mature Forest habitat area MF-2. Impacts to these buffers are not likely to adversely affect the core habitat or associated sensitive species. Additionally, mitigation for proposed impacts to these buffers could be accomplished through enhancement measures proposed for impacts to MF-2.

To offset impacts to affected concentrations of logs (SL-3), minimal movement of logs during construction in this area and relocating logs to areas immediately adjacent to the corridor is recommended. Additional mitigation could include creating additional areas of concentrated logs in strategic forested locations using new logs cut during trail construction.

Talus

The Project corridor conflicts with 1.4 acres of talus. In general, the Project conflicts associated with areas of talus would likely be avoided through design modifications because of the difficulty associated with developing a trail directly across talus; however, trail construction would likely impact several rock piles within the corridor (TA-7, TA-8, TA-10, and TA-21 to TA-23). Impacts to talus habitat buffers (10.3 acres) would occur throughout the corridor from vegetation clearing during trail construction. Proposed mitigation for these impacts includes revegetation of exposed talus and talus buffer zones as well strategic concentrated LWD placement on target talus slopes.

Table 2. Significant Natural Resource Conflicts Observed within the Project corridor during the April 25 and 28 2011, May 2, 2011, and June 10 and 13, 2011 field investigations.

Significant Natural Resource	Site/Area ID	Map Page	Habitat Subtype	Conflict Type	Species Observation
Wildlife Observations	AN-1	8	Forested	N/A	Osprey
	AN-2	8	N/A (flying)	Direct N/A	Pileated woodpecker
	AN-3	12	Talus	Direct N/A	Larch Mountain salamander
	AN-4	21	Cliff	Buffer	Peregrine Falcon
Cliffs	CL-1	6	Exposed	Direct	N/A
	CL-2	6	Forested	Direct	
	CL-3	7	Exposed	Direct	
	CL-4	7	Exposed	Buffer	
	CL-5	7	Exposed	Direct	
	CL-6	7	Forested	Direct	
	CL-7	7	Forested	Buffer	
Cliffs	CL-8	7	Forested	Direct	N/A
	CL-9	7	Forested	Direct	
	CL-10	8	Exposed	Direct	
	CL-11	8	Forested	Direct	
	CL-12	8	Forested	Direct	
	CL-13	12	Forested	Direct	
	CL-14	14	Exposed	Direct	
	CL-15	15	Exposed	Direct	Long-bearded hawkweed
	CL-16	15	Exposed	Direct	N/A
	CL-17	15, 16	Exposed	Direct	Long-bearded hawkweed
	CL-18	17	Exposed	Direct	N/A
	CL-19	18	Forested	Direct	
	CL-20	18	Exposed	Direct	Long-bearded hawkweed
	CL-21	18, 19	Forested	Direct	N/A
	CL-22	19	Exposed	Direct	
	CL-23	21, 22	Exposed	Direct	
	CL-24	21	Exposed	Buffer	Peregrine Falcon
	CL-25	26	Exposed	Direct	N/A
	CL-26	28	Exposed	Direct	
Mature Forest	MF-1	3	Fir	Direct	N/A
	MF-2	7, 8	Fir	Direct	Pileated woodpecker
Oregon White Oak Woodland	OW-1	29	N/A	Direct	Long-bearded hawkweed
Rare Plant Observations	PL-1	6	Talus	Buffer	Long-bearded hawkweed
	PL-2	6	Talus - Exposed	Direct	Long-bearded hawkweed
	PL-3	6	Cliff	Direct	Long-bearded hawkweed
	PL-4	6	Cliff	Direct	Long-bearded hawkweed
	PL-5	6	Talus - Forested	Direct	Long-bearded hawkweed and Cliff paintbrush
	PL-6	7	Talus- Exposed	Direct	Long-bearded hawkweed
	PL-7	17	Talus-	Direct	Long-bearded hawkweed
	PL-8	18	Talus	Direct	Long-bearded hawkweed
	PL-9	20	Cliff	Direct	Long-bearded hawkweed

Significant Natural Resource	Site/Area ID	Map Page	Habitat Subtype	Conflict Type	Species Observation
Rare Plant Observations	PL-10	24	Cliff	Unknown	Smooth-leaf Douglasia (Unconfirmed)
	PL-11	25	Wetland	Buffer	Dense sedge
	PL-12	33	Oregon White Oak Woodland	Buffer	Long-bearded hawkweed
	PL-13	33	Oregon White Oak Woodland	Buffer	Long-bearded hawkweed
Snags and Logs	SL-1	8	Snags	Buffer	Pileated woodpecker
	SL-2	8	Snags	Direct	
	SL-3	8	Logs	Buffer	N/A
	SL-4	8	Snags	Buffer	
Streams	ST-1	2	Perennial	Direct	N/A
	ST-2	6	Perennial	Direct	
	ST-3	7	Intermittent	Buffer	
	ST-4	9	Perennial	Direct	
	ST-5	10	Perennial	Buffer	
	ST-6	10	Intermittent	Direct	
	ST-7	10, 11	Perennial	Direct	
	ST-8	11	Perennial	Buffer	
	ST-9	12	Intermittent	Direct	
Streams	ST-10	13	Perennial	Direct	N/A
	ST-11	14	Ephemeral	Direct	
	ST-12	18	Perennial	Direct	
	ST-13	19	Ephemeral Ditch	Buffer	
	ST-14	19	Perennial	Direct	
	ST-15	19, 20	Perennial	Direct	
	ST-16	20	Perennial	Direct	
Talus	TA-1	3	Forested	Buffer	Long-bearded hawkweed
	TA-2	4, 5	Exposed	Direct	
	TA-3	5	Forested	Direct	
	TA-4	5	Exposed	Direct	
	TA-5	5, 6	Forested	Direct	Long-bearded hawkweed and Cliff Paintbrush
	TA-6	6	Forested	Direct	Long-bearded hawkweed
	TA-7	6	Forested	Direct	N/A
	TA-8	6	Rockpile - Forested	Direct	
	TA-9	6	Exposed	Direct	
	TA-10	8	Rockpile - Forested	Buffer	
	TA-11	9	Forested	Direct	
	TA-12	9	Forested	Direct	
	TA-13	10	Forested	Direct	
	TA-14	11, 12	Forested	Direct	
	TA-15	12	Exposed	Direct	
	TA-16	12	Forested	Direct	
	TA-17	12	Exposed	Direct	
	TA-18	12	Forested	Direct	
	TA-19	12	Forested	Direct	Larch Mountain salamander

Significant Natural Resource	Site/Area ID	Map Page	Habitat Subtype	Conflict Type	Species Observation
Talus	TA-20	15	Forested	Direct	N/A
	TA-21	15	Rockpile - Forested	Direct	
	TA-22	15	Rockpile - Forested	Direct	
	TA-23	15	Rockpile - Forested	Direct	N/A
	TA-24	15	Forested	Direct	
	TA-25	16	Forested	Direct	
	TA-26	18	Forested	Direct	
Wetlands	WL-1	1, 2	PFO	Buffer	N/A
	WL-2	2	PEM	Direct	
	WL-3	8	PSS	Buffer	
	WL-4	10	PFO	Buffer	
	WL-5	14	PEM	Buffer	
	WL-6	14	PEM	Direct	
	WL-7	15	PEM	Direct	
	WL-8	17	PEM	Direct	
	WL-9	19	PEM	Buffer	
	WL-10	21, 22	Vernal Pool	Direct	
	WL-11	22	PEM/PFO	Direct	Dense Sedge

Noxious Weed Populations

Six plant species listed on the Oregon state noxious weed list were observed within the Project corridor (Table 3) (ODA 2011). MB&G documented areas within the corridor where noxious weed populations were observed in high concentrations (approximately 2.8 total acres). Robert geranium (*Geranium robertianum*) and shining geranium (*Geranium lucidum*) were found in high concentrations throughout the corridor. As such, populations of these species were not recorded in the attached maps. Additionally, slender false brome (*Brachypodium sylvaticum*) was observed in low concentrations within many of the forested areas within the survey corridor; however, only one population was mapped because of its relative extent (NX-4).

Table 3. Noxious weed populations observed within the survey corridor.

Site ID	Map #/Area	Common Name	Scientific Name
NX-1	1 / 0.1	Himalayan blackberry	*Rubus armeniacus*
NX-2	6 / 0.04	Scotch broom	*Cytisus scoparius*
NX-3	7 / 0.02	Scotch broom	*Cytisus scoparius*
NX-4	8 / 0.5	Slender false brome	*Brachypodium sylvaticum*
NX-5	9 / 0.01	Himalayan blackberry	*Rubus armeniacus*
NX-6	10 / 0.2	English ivy	*Hedera helix*
NX-7	10, 11 / 0.3	Himalayan blackberry	*Rubus armeniacus*
NX-8	11 / 0.2	English ivy	*Hedera helix*
NX-9	12 / 0.2	Scotch broom	*Cytisus scoparius*
NX-10	14 / 0.01	Common periwinkle*	*Vinca minor*
NX-11	20 / 0.06	Common periwinkle	*Hedera helix*
NX-12	20 / 0.01	Common periwinkle	*Vinca minor*
NX-13	20 / 0.2	English ivy	*Hedera helix*
NX-14	21 / 0.01	Scotch broom	*Cytisus scoparius*
NX-15	21 / 0.04	Scotch broom	*Cytisus scoparius*
NX-16	22 / 0.1	Himalayan blackberry	*Rubus armeniacus*
NX-17	24, 25 / 0.6	Himalayan blackberry	*Rubus armeniacus*
NX-18	25 / 0.06	Scotch broom	*Cytisus scoparius*
NX-19	25 / 0.2	Himalayan blackberry	*Rubus armeniacus*
NX-20	29 / 0.04	Himalayan blackberry	*Rubus armeniacus*

*Not listed on the state noxious weed list

Conclusions

MB&G biologists conducted field investigations of the Project corridor April 25 and 28 2011, May 2, 2011, and June 10 and 13, 2011. MB&G biologists identified 7.28 acres of direct SNR conflicts within the proposed Project's survey corridor. In addition, MB&G biologists identified approximately 49.3 acres of SNR buffer conflicts within the proposed Project's survey corridor. Table 4 summarizes the Project SNR conflicts. These conflict area calculations do not reflect corridor conflicts associated with several overlook access trails because exact trail location data for these areas were not available at the time of this memo production.

The preferred alternatives for impact mitigation outlined in Article 75 include adjusting the trail alignment to avoid direct impacts to all sensitive plant and wildlife sites and areas, and timing construction to avoid work during the time of year when wildlife species are sensitive to disturbance (e.g. nesting periods for migratory birds, etc.). In addition, modifications to buffer widths in conflict with the Project corridor could be approved by the Hood River County Planning Director. As such, we recommend performing the Article 75 Practicable Alternative Test for all SNRs and entering into consultation with the Director prior to the development of the site plan.

Wetland creation and restoration opportunities within or adjacent to the corridor are limited; however, opportunities could exist in the vicinity of WL-11. Substantial wetland enhancement and sensitive plant rehabilitation opportunities also exist associated with WL-1, WL-4, and WL-11.

Impacts to perennial streams within the corridor will likely be avoided through bridge design. Impacts to intermittent and ephemeral streams and all stream buffers could be mitigated through restoration of impacted stream channels and buffers in the vicinity of the impact. Additional enhancement opportunities including noxious weed removal and revegetation occur within the riparian zone for Warren Creek (ST-7).

Mitigation for impacts to cliffs and sensitive plant areas and sites could consist of sensitive plant habitat creation through strategic clearing of vegetation from some cliffs during trail construction. Additional mitigation could be provided through coordination

with local organizations such as the Columbia Gorge Ecology Institute to accomplish plant salvage and relocation prior to construction.

Recommended mitigation for Project impacts to wildlife areas or sites and the Oregon White Oak priority habitat includes the rehabilitation of degraded habitats through the removal of invasive species and targeted revegetation within or adjacent to the Project corridor.

Mitigation for impacts to talus areas and associated buffers, as well as areas of concentrated snags and logs could be offset by the strategic distribution of LWD produced by trail construction clearing activities as well as the targeted revegetation of exposed talus.

Table 4. Summary of Significant Natural Resource conflicts within the survey corridor.

Significant Natural Resource	Direct Impact Area(Acres)	Buffer Impact Area (Acres)
Wetlands	0.2	5.1
Streams	0.1	8.3
Plant Sites	N/A	4.7
Wildlife Sites	N/A	3.9
Cliffs	1.9	14.4
Mature Forest	3.4	4.9
White Oak Woodland	0.4	0.7
Snags and Logs	0.2	2.8
Talus	1.4	10.3
Total	**7.3**	**48.0**

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APPENDIX A

SPECIAL-STATUS SPECIES LIST

Historic Columbia River Highway State Trail National Scenic Area Permit - Natural Resource Elements Conflict Memorandum

Hood River County, Oregon

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
FISHES					
Bull trout (Columbia River) (Salvelinus confluentus)	T OR-SC WAC	Spawns and rears in cold streams/lakes. Adults will disperse and/or migrate in warmer systems such as the Columbia River mainstem. Presently also documented in Hood River, Drano Lake, and suspected in Klickitat R and Sandy R within NSA within NSA.	x		
Steelhead trout (Snake River) (Oncorhynchus mykiss)	T WA-C	Anadromous: Presence within the NSA limited to migration corridor of the Columbia River.	x		
Steelhead trout (Mid-Columbia River) (Oncorhynchus mykiss)	T WA-C	Anadromous: Spawns and rears within Columbia River tributaries between Mosier and Yakima, in both O and WA.	x		
Steelhead trout (Upper Columbia River) (Oncorhynchus mykiss)	E WA-C	Anadromous. Presence within the NSA limited to migration corridor of the Columbia River.	x		
Steelhead trout (Lower Columbia River) (Oncorhynchus mykiss)	T OR-SC WAC	Anadromous: Spawns and rears within Columbia River tributaries between the mouth of the Columbia R east to Hood River, in both OR and WA.	x		
Chinook (Mid-Columbia spring run)(Oncorhynchus tshawytscha)	FS	Anadromous: Spawns and rears within Columbia Rivertributaries between Mosier and Yakima, in both OR and WA.		x	
Chinook salmon (Snake River spring/summer/fall runs) (O. tshawytscha)	OR OR-T WA-C	Anadromous. Presence within the NSA limited to migration corridor of the Columbia River.	x		
Chinook salmon (Lower Columbia River) (Oncorhynchus tshawytscha)	T OR-SC (fall run) WA-C	Anadromous: Spawns and rears within Columbia River tributaries between the mouth of the Columbia R east to Hood River, in both OR and WA.	x		
Chinook salmon (Upper. Columbia R) (Oncorhynchus tshawytscha)	E WA-C	Anadromous: Presence within the NSA limited to migration corridor of the Columbia River.	x		
Sockeye salmon (Snake River) (Oncorhynchus nerka)	E WA-C	Anadromous. Presence within NSA limited to migration corridor of the Columbia River. Spawning area typically adjacent to or within lakes, where young rear.	x		
Chum salmon (Columbia River) (Oncorhynchus keta)	T OR-SC WA-C	Anadromous: Spawns and rears in several locations on the Columbia River shoreline as well as within low gradient Columbia R tributaries, in both OR and WA. Historically documented spawning run as far east as the Umatilla/Walla Walla systems, but present pop. largely below Bonneville dam. Some incidental spawning known to occur near the mouths of White Salmon R (WA) and Eagle Creek (OR).	x		
Coho (lower Columbia River) (Oncorhynchus kisutch)	T OR-E	Anadromous: Spawns and rears within Columbia River tributaries between the mouth of the Columbia R east to Hood River, in both OR and WA.	x		
Coastal cutthroat trout (Lower Col R Anadromous form) (Oncorhynchus clarki clarki)	OR-SC	Anadromous: Spawns and rears within Columbia River tributaries between the mouth of the Columbia River east to the Hood River.	x		
Pacific lamprey (Lampetra tridentata)	OR-SV	Anadromous: Found sporadically throughout Columbia River basin. Spawns in gravelly riffles in late spring/summer. Ammocoetes rear for aprox. 6 years in silt and fine sand before outmigration.	x		
River lamprey (Lampetra ayresi)	WA-C	Anadromous: Historically thought to occur throughout the Columbia River system, but little information on current distribution or abundance. Difficult to ID as ammocoetes. Adults not documented in OR/WA since 1980.	x		
Eulachon (Thaleichthys pacificus)	WA-C	Anadromous, with spawning in mainstem Columbia River & lower reaches of rivers, often within tidal influence. (Sandy River in NSA). Historically migrated as far east as Hood River prior to Bonneville Dam	x		
Leopard dace (Rhinichthys falcatus)	WA-C	Disjunct pops in Columbia River mainstem Yakima, Snake, Similkameen rivers. Habitat in large, slower flowing rivers/lakes. Lay adhesive eggs in riffles, late spring.	x		

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Mountain sucker(Catostomus platyrhynchus)	WA-C	Historic range in Columbia River system, largely east of Cascades, including the Columbia River mainstem & lower Klickitat River within the NSA. June/July spawner in riffles.	x		
Western Brook Lamprey (Lampetra richardsoni)	OR-SV	Resident and nonparasitic. Documented in tributaries of White Salmon River and Klickitat River.			
HERPTILES					
Cope's giant salamander (Dicamptodon copei)	FS OR-SU	Western WA, Northwestern OR: Clear, cold mountain streams w/rocky substrate	x		Yes
Cascade torrent salamander (Rhyacotriton cascadae)	FS WA-C OR-SV	Cascade Mtns of southern WA and northern OR: in and adjacent to cold, fast, mountain streams or seeps w/rocky substrate	x		Yes
Dunn's salamander (Plethodon dunni)	WA-C	Coast range only WA and Western OR: moss-covered rock rubble, shady stream banks.	x		Yes
Oregon slender salamander (Batrachoseps wrighti)	FS OR-SU	North and Central OR Cascades: Forests with large down logs and moist talus with abundant wood debris	x		Yes
Larch mountain salamander (Plethodon larselli)	FS WA-C OR-SV	Cascades mountains of southern WA/northern OR: Largely in moss-covered shady talus slopes, low-mid elevation.	x		Yes
Columbia spotted frog (Rana luteiventris)	WA-C OR-SU	Columbia basin (east of Cascades Range): In or near permanent slow ponds, streams, marshes with abundant veg. (one known site at Conboy). No currents sites in NSA.	x		No
Oregon spoted frog (Rana pretiosa)	FS WA-E OR-SC	The Oregon spotted frog was historically found in the Puget Trough from the Canadian border to the Columbia River and east into the southern Washington Cascades. In or near large perennial lakes/marshes. Closest extant population at Crane prairie reservoir in Deschutes county.	x		Yes
Northern leopard frog (Rana pipiens)	WA-E OR-SC	Lowland marsh/pondswith dense vegetation; presently found in Grant county only. Likely extirpated in Gorge.	x		Not likely
Western toad (Bufo boreas)	WA-C OR-SV	Widespread distribution in WA and OR: Most common near marshes and small lakes (breeding sites in midspring); can travel readily overland and be found along streams/seeps.	x		Yes
Tailed frog (Ascaphus truei)	OR-SV	Clear, cold, fast forest streams with little silt and (often) cobble substrate.	x		Yes
Cascades frog (Rana cascadae)	OR-SV	High elevation streams (1500-6000') as well as mtn meadows and moist forests	x		No
Northern red-legged Frog (West Cascades) (Rana aurora)	OR-SU	Generally found below 3000' in moist forests and forested wetlands. Breeds in cool ponds and slow streams. Adults can be found some distance from water during wet seasons.	x		Yes
Northwestern pond turtle (Clemmys marmorata)	FS WA-E OR-SC	Streams, lg rivers, slow sloughs, and quiet waters with nesting habitat (open meadow) within ½ mile. Occurs below 3000' elevation.	x		Yes
Painted turtle (Chrysemys picta)	FS (OR) OR-SC	Slow water ponds, marshes, rivers below 3000' elevation Widely introduced outside Columbia River Gorge and Columbia River basin.	x		Yes
California Mtn king snake (Lampropeltis zonata)	FS(WA) WA-C OR-SV	Main population in CA and Klamath mtns, with disjunct population. in Columbia River Gorge (Klickitat, Skamania county area): oak/pine woodland, rocky riparian within logs/rocky cover. No confirmed specimens on OR side of NSA, although unconfirmed sightings have been reported at The Dalles and Maupin areas.	x		No
Sharptail snake (Contia tenuis)	FS(WA) WA-C OR-SV	East slope of WA Cascades, Columbia River Gorge, western OR: rocky slopes often in open pine/oak woodland w/prey species of small slugs. Often in moist riparian east of Cascades. Largely subterranean during summer, appearing in spring/fall.	x		Yes

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Striped whipsnake (Masticophis taeniatus)	FS(WA) WA-C	South/central WA, eastern OR: dry rocky sites, oak woodland, pine forests	x		Yes
BIRDS					
Bald eagle (Haliatus leucocephalus)	T WA-T OR-T	Shoreline (generally within 1 mile of large water bodies) with large trees and prey base of primarily fish. Diet also includes some waterfowl, turtles, and carrion.	x		Yes
Northern spotted owl (Strix occidentalis caurina)	T WA-E OR-T	Mature coniferous forest generally used for nesting, roosting, and foraging. Will disperse in early or mid-seral forests.	x		Yes
Ferruginous hawk (Buteo regalis)	FS(WA) WA-T OR-SC	Open prairie and shrub steppe in eastern WA and OR.	x		No
Peregrine falcon (Falco peregrinus)	FS OR-E WA-S	Tall cliff (nest) sites within 1 mile of water with sm. bird prey base.	x		Yes
Northern goshawk (Accipiter gentilis)	WA-C OR-SC	Typically more common east of Cascades in a wide variety of forest ages, structural conditions, and successional stages. Uses stands of mature forest as nesting sites. Typically found between 1900 and 6100 feet in Oregon.	x		No
Golden eagle (Aquila chrysaetos)	WA-C	Various habitats in open country/forests, often nests on steep cliffs or large trees.	x		No
Merlin (Falco columbarius)	WA-C	Forests, grasslands, marshes. Nests in WA Cascades, northeatern WA. Winters in all northwest U.S.	x		No
Flammulated owl (Otus flammeolus)	WA-C OR-SC	East Cascades: cavity nester in mature pine and mixed conifer, at mid-elevations. Winters south of US border.	x		No
Common loon (Gavia immer)	FS(WA) WA-S	Undisturbed lakes and ponds with fish/invert prey base. Spring/fall migrant and winters in NSA.	x		Yes
Western Grebe (Aechmophorus occidentalis)	WA-C	Open lakes and marshes w/rushes and tules, winters in coastal esturaies/bays.	x		Yes
Clark's grebe (Aechmophorus clarkii)	FS(WA)	Winters in NSA on large rivers. Breeds in large lakes with tule or rushes.		x	Yes
Horned grebe (OR only) (Podiceps grisegena)	FS(OR) OR-SP	Common winter resident on Columbia River within NSA. Breeds on marshes and lakes in eastern WA/OR	x		Yes
Red-necked grebe (Podiceps grisegena)	FS(OR, OR-SC	Rare winter migrant on the Columbia River. Uncommon breeder in eastern WA/OR.	x		Yes
Eared grebe (Podiceps nigricollis)	FS(WA)	Documented but uncommon winter resident of NSA. Breeds in eastern OR/WA lakes/reservoirs with rushes/cattails		x	Yes
Bufflehead (Bucephala albeola)	FS(OR) OR-SU	Nests in tree cavities at high elevation forested lakes. Common migrant and winter resident in OR and western WA in large ponds (including Columbia River.) to coastal estuaries.	x		Yes
Barrow's goldeneye (breeding population) (Bucephala islandica)	OR-SU	Cascade range: breeds along ponds, sloughs and lakes in mountainous areas, using tree cavities or nest boxes. Winters in large rivers or marine habitat.	x		Yes
Harlequin Duck (Histrionicus histrionicus)	FS	Swift forested streams during breeding season. Coastal estuaries in winter. Documented in Eagle Creek (OR), Hood River, and Wind, White Salmon Rivers (WA).	x		Yes
American white pelican (Pelecanus erythrorhynchos)	WA-E OR-SV	Winters as coast. Breeds at CRGNSA on ground, usually within 10m of fast moving Cascade tribs of the Lower and Middle Columbia River, often on rocky islands and banks.	x		Yes
Aleutian Canada goose (Branta canadensis leucopareia)	WA-T	Winters at Ridgefield NWR, as well as other locations near Columbia River.	x		Yes
Sandhill crane (Grus canadensis)	WA-E	Riverine wetland, islolated mtn meadows/basins. No current breeding pops in the NSA, some migration.	x		No
Yellow-billed cuckoo (Coccyzus americanus)	WA-C OR-SC	Historic range in WA and OR. No reported breeding occurrences since the 1950's, although individuals have been sighted east of Cascades sporadically. Riparian forests, with cottonwood/thick willow; Neotropical migrant. Considered extirpated from WA and OR.	x		Yes
Lewis' woodpecker (Melanerpes lewis)	WA-C OR-SC	Open pine/oak woodland, conifer forests, and riparian woodland; neotropical migrant. Commonly seen in east areas of NSA in dry forest types of oak and pine.	x		No

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
White-headed woodpecker (Picoides albolarvatus)	WA-C OR-SC	Central/eastern. WA/OR in mature and open coniferous forests, especially ponderosa pines. Cavity nester. Not currently documented in NSA.	x		Yes
Three-toed woodpecker (Picoides tridactylus)	OR-SC	Range in higher elevation OR Cascades in forests with Pine or Spruce component with bark beetle availability (diseased/ dying/ burned trees). Very limited habitat in NSA.	x		No
Black-backed woodpecker (Picoides arcticus)	WA-C OR-SC	Uncommon Cascades resident usu. at higher elvations (above 3000'). Eastern Cascades in WA. Scattered distribution as populations are highly associated with postfire habitats in mature forests (stand-replacement fires with snags), dependent on high density of dead and insect-ridden trees.	x		No
Pilieated woodpecker (Dryocopus pileatus)	WA-C OR-SV	Conifer/mixed conifer forests, as well as decidous stands in valley bottoms with large dead or live trees (or remnants) for foraging and nesting. Primary cavity nester.	x		Yes
Williamson's sapsucker (Sphyrapicus thyroideus)	OR-SU	East slopes of Cascades: breeds in coniferous mountain forests at mid to high elevation. Prefers large snags for nesting. Majority of population migrate to southwestern US for winter.	x		No
Mountain quail (E Cascades, Blue Mtns, High Plains pops.) (Oreotryx pictus)	OR-SU	Generally found in shrub dominated communities that can be within mixed conifer/decidous forests, generally near available water. Locally found around Seven-mile hill, Mosier, and Middle Mountain in Oregon. Not listed in WA, but found in southeastern Skamania and western Klickitat counties. Seasonal migrations vertically.	x		Yes
Sharp-tailed grouse (Tympanuchus phasianellus)	WA-T	Grasslands/sagebrush. Historically found east of the Cascades, including much of Klickitat county, but extirpated in 1950's from most of range in WA and OR. Remnant population in northeastern WA.	x		No
Sage sparrow (Amphispiza belli)	WA-C	Eastern WA/OR; flat terrain highly associated with big sagebrush, may also use chaparral, and dry foothills. On periphery of habitat in NSA; in the extreme eastern end. No known current pops.,although migrants may pass through the NSA. Winters in southern OR, and southwest US states.	x		No
Sage thrasher (Oreoscoptes montanus)	WA-C	Eastern WA/OR semi-arid sagebrush plains and bottomlands. May have historically been in outlying east portion of NSA, but no current populations.	x		No
Loggerhead shrike (Lanius ludovicianus)	WA-C	East of Cascades: dry grassland and sagebrush desert habitats. On periphery of habitat in NSA with sightings in east Klickitat county. Neotropical migrant.	x		No
Oregon vesper sparrow (Pooecetes gramineus affinis)	WA-C	Lowland valleys of western WA and OR: (Willamette, Klamath, Puget sound) sparsely vegetated grasslands with scattered tall structures used for song perches, including agricultural lands. On periphery of habitat in NSA. Ground nester.	x		Yes
Pygmy nuthatch (E. Cascades population) (Sitta pygmaea)	OR-SV	Open mature and old growth ponderosa pine stands; although foraging may occur in younger stands. Cavity maker/nester in large snags (critical habitat component)	x		No
Western bluebird (West slope Cascades population) (Sialia mexicana)	OR-SV	Secondary cavity nester. Found in open habitat that has required snags (or nest boxes). Limited habitat in Scenic Area on west slope of Cascades, except Sandy River Delta.	x		Yes
Gray flycatcher (Empidonax wrightii)	FS	Southeast WA and eastern OR: Sagebrush and pinyon juniper woodlands. On periphery of habitat in NSA. Winters in southwest US and southward.		x	No
Ash-throated flycatcher (Myiarchus cinerascens)	FS (WA)	Oak and juniper woodlands. Nests in natural or artificial cavities. Winters in southwest US and southward.		x	No
Willow flycatcher (East Cascades population) (Empidonax adastus)	OR-SU	Associated with shrub habitat. Dependent on willow thickets in riparian zones for nesting and migration. Neotropical migrant.	x		Yes

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Black swift (Cypseloides niger)	FS(OR) OR-SP	Nests in waterfalls, steep cliffs, and damp caves out of direct sunlight. Highly suspected to be in NSA. Neotropical migrant.	x		Yes
Vaux's swift (Chaetura vauxi)	WA-C	Found in forests and urban areas where their need for hollow trees/bark or chimneys for nesting sites are met; neotropical migrant	x		Yes
Purple martin (Progne subis)	OR-SC WA-C	Western WA/OR up through Gorge to western Wasco County: cavity/crevice nester, often near water. Forages over open water/fields/ forest canopy. Winters in South America.	x		Yes
Bank swallow (Riparia riparia)	OR-SU	East of Cascades along waterways or roadcuts where vertical cliffs of soil are exposed adjacent to large open area. Neotropical migrant.	x		No
Great Blue Heron (Ardea herodias)	MP	Near water, including rivers, lake and pond edges, and wetlands, as well as dry fields and pastures. Highly adaptable to urban areas Often nests colonially, near water.	x		Yes
Golden Eagle (Aquila chrysaetos)	MP	Generally open habitats such as shrub steppe, grassland, open pine and juniper forest and mixed conifer/deciduous forest. Nests on trees, ledges and cliffs.	x		NO
Osprey (Pandion haliaetus)	MP	Near freshwater lakes, rivers and resevoirs with fish. Nests almost always within two miles of water.	x		Yes
Prairie Falcon (Falco mexicanus)	MP	Breeds in open country east of the Cascades containing cliffs and outcrops for nesting.	x		No
MAMMALS					
Grizzly bear (Ursus arctos)	T WA-E	Historically in lower 48 states, presently restricted to areas with low human populations, such as North Cascades Range.	x		No
Gray wolf (Canis lupus)	E WA-E	Historically found in almost all habitats in lower 48 states; presently in steppe, woodland, and forest where reintroduced.	E		Not likely
California wolverine (Gulo gulo)	FS WA-C OR-T	Conifer Forests. Intolerant of human encounters/ disturbance. Require very large home ranges. One sighting in last several decades from road-killed juv male on I-84, near Starvation Creek., January 1990.	x		Yes
Pacific fisher (Martes pennanti)	FS WA-E OR-SC	Optimum habitat is dense, lower elevation, mature conifer forest, with large down logs for nesting. Likely extirpated in NSA and adjacent forests.	x		Yes
American marten (Martes americana)	OR-SV	Mature and old growth forests with large amounts of standing snags and down wood. Tend to be in mesic forests at mid to high elevation.	x		Yes
Columbian white-tailed deer (Lower Columbia River population only) (Odocoileus virginianus leucurus)	E WA-E	Historic distribution in floodplains, bottomland riparian of Willamette and Lower Columbia River now limited to these lower southwest counties: Clark, Cowliz, Pacific, Skamania, and Wahkiakum Counties, WA., and Clatsop, Columbia, and Multnomah Counties, OR..	x		No
White-tailed jackrabbit (Lepus townsendii)	WA-C OR-SU	East of Cascades: open areas with native bunchgrass, sagebrush plains, can also be found in coniferous forests and subalpine meadows. On periphery of habitat in NSA at the Dalles/Dallesport.	x		No
Washington ground squirrel (Spermophilus washingtoni)	WA-C OR-E	Presently found in Columbia basin of WA state in sagebrush/grassland w/ sandy soils; also Giliam, Morrow and Umatilla counties, OR. May have historically been within the eastern edge of NSA.	x		No
Western gray squirrel (Sciurus griseus)	FS(WA) OR-SU WA-T	Open mixed oak/conifer woodland, typically within ½ mile of water source. Core range for WA in Klickitat county. Known to occur in Hood River and areas east within OR. Easy to confuse with non-native and invasive Eastern gray squirrel.	x		No
Gray-tailed vole (Microtus canicaudus)	WA-C	Endemic to Clark County, WA and OR Willamette Valley: Grassy and agricultural lands, meadows. On periphery of habitat in NSA. Common in OR.	x		Not likely

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Townsend's big-eared bat (Corynorhinus townsendii)	FS(WA) WA-C, OR-SC	Throughout Western US. Roost and hibernaculum sites within caves, buildings, mines and bridge undersides, with exacting temp, humidity, and physical requirements. Very intolerant of human disturbance which results in loss of critical fat reserves during torpid period.	x		Yes
Pacific Pallid bat (Antrozous pallidus)	FS(OR) OR-SV	Arid area specialist. Daytime roosts in buildings and crevices, less often in caves and other shelters. Feeds primarily on the ground on large insects, scorpions, and other small prey.	x		Yes
Pacific Fringe-tailed bat (Myotis thysanodes vespertinus)	FS	Nursery colonies and roosts in mines, caves, buildings and similar. Intolerant of human disturbance. Documented in Little White Salmon subbain 1996		x	Yes
Silver-haired bat (Lasionycteris noctivagans)	OR-SU	Found throughout Oregon: among the most common bats in forested areas of America, most closely associated with coniferous or mixed coniferous and deciduous forest types, especially in areas of Old Growth. They form maternity colonies almost exclusively in tree cavities or small hollows	x		Yes
Western small-footed myotis (Myotis ciliolabrum)	OR-SU	West Cascades and eastward: Rears its young in cliff-face crevices, erosion cavities, and beneath rocks on the ground as well as hibernating in caves or mines. Relatively little is known about this species.	x		Yes
Long-eared myotis (Myotis evotis)	OR-SU	Statewide: found in coniferous roost in tree cavities and beneath exfoliating bark in both living trees and dead snags.	x		Yes
Long-legged- myotis (Myotis volans)	OR-SU	Statewide: especially dependent on wooded habitats of coniferous forests, usually at elevations of 4,000 to 9,000 feet. Nursery colonies found in large mature trees that provide crevices or exfoliating bark, along openings or along forest edges where they receive a large amount of daily sun. Also found in rock crevices, cliffs, and buildings. Long-legged myotis forage over ponds, streams, water tanks, and in forest clearings, often on moths.	x		Not likely
Mountain Goat (Oreamnos americanus)	MP	Typically, steep slopes and cliffs and associated meadows. May travel many hundreds of miles in atypical habitat to reach suitable habitat.	x		No
INVERTEBRATES					
California floater mussel (Anodonta californiensis)	WA-C	Shallow areas of lakes, ponds, reservoirs, and large rivers with muddy or sandy substrate. Historically found throughout the western US, but presently known to occur as remnant populations in Columbia, Okanogan, and lower Willamette river systems. Intolerant of fluctuating water levels that decimate local populations.	x		
Giant Columbia River limpet (Fisherola nuttalli)	FS, WA-C	Historically in almost the entire Columbia River basin, now restricted to a few remant sites. In WA, confirmed in Hanford Reach of the Columbia River, as well as the Okanogan, Wenatchee and Methow rivers. In OR, only documented in Deschutes River	x		
Great Columbia River spire snail (Fluminicola columbiana)	FS WA-C	Historically, widespread throughout the Lower Snake and Columbia Rivers, and their larger tributaries. Now limited to a few reaches of the Columbia River system that remain free-flowing and colder. Confirmed in a few sites along the Columbia, Okanogan, Wenatchee and Methow Rivers in WA, and the Deschutes River in OR.	x		

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Puget Oregonian (Cryptomastix devia)	FS	Western Cascade Range in Low/Mid elevations (CRGNSA, GPNF, Clackmas RD. HR RD, ZZ RD, OlympicNF, Salem BLM, Hebo RD, Wenatchee NF, MBSNF): Moist conifer forests, associated with bigleaf maple. Often found on or under hardwood logs, leaf litter, or under sword fern, moist rocks/talus. Yound devia may be under mosses on trunk of big-leaf maple.		x	
Columbia Oregonian (Cryptomastix hendersoni)	FS	Low to Mid elevations Gorge in Wasco, Sherman, Skamania and Klickitat counties (CRGNSA, MHNF, Naches RD, Mt. Adams RD): Within 100 m. of streams, seeps, & springs (low elevation) in steppe communities. May also be in mid elevation mature closed canopy forests among moist talus, leaf litter, or shrubs, or under logs or other debris.		x	
Malone's jumping slug (Hemphilia malonei)	FS-WA	Below 4600' elevation. Benton Cntn northward into western OR Cascades and into southwest Cascades of WA. CRGNSA, GPNF, MHNF excp Barlow, Salem BLM Cascades, Olympic NF Hood CanalRD, WillametteNF DetroitRD): Moist forest stands, generally >50 yrs, with >50% canopy cover, especially where dense sword fern and LWM exist. Some found near marshy areas w/low veg cover.		x	
Basalt Juga (Juga oreobasis, new sp. 2)	FS-OR	CRGNSA (listed in OR only, Wasco and Hood River counties, but also found in Klickitat and Skamania County): Spring fed springs/streams in low elevation (perennial), small drainages that drain to the Columbia River in Gorge.		x	
Columbia Duskysnail (Lyogyrus n. sp. 1)	FS	CRGNSA, GPNF, MHNF. Counties include Klickitat, Skamania, Cowlitz, Clark, Wash, Mult, Clack, Hood River): Spring and Spring outflows in cold, clear, and welloxygenated water. Usu. slow flow with moss substrate.		x	
Dalles sideband (Monadenia fidelis minor)	FS	Central and East Gorge; Wasco and Klickitat Counties. CRGNSA, MHNF Barlow and Hood R RD, GPNF Mt Adams RD): Within 200 m. of streams, seeps, or springs, in steppe or dry forest plant communities (within talus and moist rocky areas). May be found among rocks, shrubs/veg. and down wood.		x	
Blue-gray taildropper (Prophysaon coeruleum)	FS-WA	Widespread. Western Cascades and puget trough, south to northern. CA. Occurs on both sides southern OR Cascades. Suspected on east slopes of Casacdes in WA: Moist conifer and mixed conifer/hardwood forest, where litter is moist and shaded. Associated with decayed logs, leaf litter, mosses and bigleaf maple/sword fern.		x	
Columbia River tiger beetle (Cicindela columbica)	WA-C	Known to occur only in sandbars of Snake and Columbia river riparian area, east of Cascades.	x		
Yuma skipper butterfly (Ochlodes yuma)	WA-C	Main population in Great Basin area w/outliers in central and eastern OR/WA: near freshwater marshes, streams, ponds, linked with Phragmites reeds. The only record within CRGNSA, in 1999, found at Maryhill on ornamental Miscanthus (Pyle, 2002).	x		
Chinquapin hairstreak butterfly (Habrodais grunus herri)	WA-C	North-central OR, Skamania County, WA: Obligate with Chrysolepis chrysophylla. One known location near Stevenson, WA.	x		
Johnson's hairstreak butterfly (Callophry[Mitoura] johnsoni)	WA-C	Cascades, Coast, Siskiyou, Blue, Wallowas mountains: coniferous forest old-growth obligate.	x		
Mardon skipper (Polites mardon)	WA-E	Historic distrubution unknown. Present known distribution is disjunct: N CA, Puget sound and south Cascades of WA. Habitat of open fescue grasslands, riparian, or meadows with nectar plant source. No known populations in the NSA but surveys by NSA office continues. Species decline likely due to loss of native grass meadows and prairie habitat throughout NW.	x		

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Purple-Lipped Juga (Juga hemphilli maupinensis)	FS(OR)	Suspected in CRGNSA on the east side (OR). Documented in Deschutes drainage. Found at low-elevation large streams in well-oxygenated and minimally impacted gravel-cobble riffles in cold water.	x		
Deschutes Mountainsnail (Oreohelix variabilis ssp. nov.)	FS(OR)	Found on Deschutes Wild and Scenic River. Maybe in CRGNSA. Moderate xeric, rather open and dry areas, in large scale basalt taluses on steep, cool aspects. Assoc. w/ seeps springs, but not in wettest areas.	x		
Columbia Gorge Caddisfly (Neothremma andersoni)	FS(OR)	Known only in the CRG in Wahkeena Creek, Multnomah Co. OR – apparently endemic to this creek system. Larvae and pupa common above Gorge escarpment, less so as stream flows out onto the Col R. floodplain.	x		
Wahkeena Falls Flightless Stonefly (Zapada wahkeena)	FS(OR)	Flightless – dispersal is only by aquatic matures. Known only in waterfalls at Wahkeena Falls – CRGNSA. Water quality important.	x		
VASCULAR PLANTS					
Tall Agoseris Agoseris elata	OR-2 WA-S FS-S	Meadows and open woods to mid-elevations.	x		
Howell's Bentgrass Agrostis howellii	OR-1 FS-S Endemic	Moist rocks on south side of Gorge (Multnomah and Hood River counties).	x		
Sickle-pod Rock Cress (Arabis sparsiflora var. atrorubens)	OR-2 FS-S	Eastside, low elevation . Open areas.	x		
Northern Wormwood (Artemisia campestris spp borealis var. wormskioldii)	OR-1 WA-1 FS-S US-C	Gravely beach areas of Columbia. Miller Island in Gorge	x		
Hood River Milk-vetch (Astragalus hoodianus)	OR-2 Endemic	Dry open areas of east Gorge	x		
Oregon Bolandra (Bolandra oregana)	WA-2 FS-S	Wet basalt cliffs	x		
Lance-leaved grape-fern (Botrychium lanceolatum)	OR-2 FS-S	Moist, wet areas in mountains.	x		
Moonwort (Botrychium lunaria)	OR-2 FS-S	Moist wet areas but rarely in meadows.	x		
Mountain grapefern (Botrychium montanum)	OR-2 FS-S	Forested/open areas in conifer forest zones	x		
Brewer reedgrass (Calamagrostis breweri)	OR-2 FS-S	Stream banks, lake margins, sub-alpine to alpine meadows.	x		
Howell's Reedgrass (Calamagrostis howellii)	Endemic	Rocky banks and crevices of cliffs within the Gorge.	x		
Long-bearded Sego Lily Calochortus longebarbaus var. longebarbatus	OR-2 WA-2 FS-S	East slope of Cascades.	x		
Dense Sedge Carex densa	WA-T FS-S	Wet areas on both sides of Cascades.	x		
Different Nerve Sedge Carex heteroneura (carex atrata var. erecta)	WA-2 FS-S	Montaine	x		
Pale sedge Carex livida	OR-2 FS-S	Willamette Valley.	x		
Large-awn Sedge Carex macrochaeta	OR-2 FS-S	Moist open places, coastal but suspected in Gorge.	x		
Native sedge Carex vernacula	OR-2 FS-S	Alpine to sub-alpine. Dwarf size.	x		
Golden Paintbrush (Castilleja levisecta)	OR-1 FS-S	Open fields west side of Cascades.	x		
Cliff Paintbrush (Castilleja rubicola)	WA-2 FS-S	Rocky cliffs at low to moderate elevations.	x		
Golden Chinquapin (Chrysolepis chrysophylla)	WA-S FS-S	Open to closed forest openings Low to mid elevations.	x		

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Bulb-bearing Water-hemlock (Cicuta bulbifera)	OR-2 WA-2 FS-S	Wet places to standing water. Low elevations	x		
Tall Bugbane (Cimicifuga elata)	OR-1 WA-S FS-S	Hardwood and mixed forest on west side	x		
Few-flowered Blue-eyed Mary (Collinsia sparaiflora var. bruceae)	WA-2 FS-S	Dry slopes with sparse vegetation on east side of Cascades. Low elevations.	x		
Three-leaf goldthread (Coptis trifolia)	OR-2 WA-1 FS-S	Wasco County.	x		
Cold-water Corydalis (Corydalis aqua-gelidae)	OR-1 WA-2 FS-S	Along cold streams on west side of Cascades.	x		
Beaked Cryptantha (Cryptantha rostellata)	WA-2 FS-S	Dry open areas, east side Cascades.	x		
Shining cyperus (Cyperus bipartitus)	WA-2 FS-S	Wet places. Low elevation.	x		
Clustered lady's-slipper (Cypripedium fasiculatum)	OR-2 WA-3 FS-S	Open to closed forested woodlands/forest. East side of Cascades.	x		
Fringed Waterplantain (Damasonium californicum)	WA-T FS-S	Sloughs, marshes and other standing waters.	x		
Pale Larkspur (Delphinium leucophaeum)	WA-E OR-1	West side (Mult.)	x		
Nuttall's Larkspur (Delphinium nuttallii)	OR-1	Westside	x		
Smooth-leaf Douglasia (Douglasia laevigata var. laevigata)	OR-3 Endemic	Basalt cliffs and rocky out-crops, low elevation through the Gorge.	x		
Howell's Daisy (Erigeron howellii)	OR-2 WA-1 Endemic FS-S	Open areas on ridges and rocky areas.	x		
Columbia Gorge Daisy (Erigeron oreganus)	OR-1 WA-2 Endemic FS-S	Over hanging basalt cliffs.	x		
Oregon Coyote-thistle (Eryngium petiolatum)	WA-1 FS-S	Dry ephemeral wetlands in east Gorge.	x		
Western Wahoo (Euonymus occidentalis)	WA-1 FS-S	In woods in west Cascades.	x		
Black Lily (Fritillaria camschatcensis)	OR-1 WA-2 FS-S	Moist areas west Cascades from coast to mountains.	x		
Currant-leaf Alumroot (Heuchera grossularifolia var. tenuifolia)	WA-3 FS-S	Cliffs, often shaded, along streams or rivers in East Gorge.	x		
Long-beard Hawkweed (Hieracium longiberbe)	Endemic	Open areas throughout Gorge.	x		
Howellia (Howellia aquatilis)	OR-1 WA-2 FS-S	Low elevation wetlands.	x		
Columbia Lewisia (Lewisia columbiana var. columbiana)	OR-2 FS-S	Open rocks areas in west Gorge, generally middle to high elevations.	x		
Baker's Linanthus (Linanthus bolanderi)	OR-2 FS-S	Dry open areas in East Gorge.	x		
Twayblade (Liparis loeselii)	WA-1 FS-S	Wet or damp areas within forest.	x		
Smooth Desert Parsley (Lomatium laevigatum)	OR-2 WA-2 FS-S Endemic	Basalt cliffs in east Gorge.	x		

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Salmon River lomatium (Lomatium salmoniflorum)	OR-2	Wasco County.	x		
Suksdorf's Desert Parsley (Lomatium suksdorfii)	OR-2 WA-3 FS-S Endemic	Open wooded or open areas in east Gorge.	x		
Watson's desert-parsley (Lomatium watsonii)	OR-2 FS-S	Hood River and Wasco Counties.	x		
Columbia Gorge Broad-leaf Lupine (Lupinus latifoius var thompsonianus)	Endemic	Open areas in pine/oak woodlands.	x		
Curved Woodrush (Luzula arcuata)	OR-2 WA-S FS-S	Hood River County	x		
Northeren bog clubmoss (Lycopodiella inundata)	OR-2 WA-S FS-S	Wet, sandy places, wetlands adjunct to lakes, and swampy ground. Westside	x		
Ground cedar (Lycopodium complanatum)	OR-2 FS-S	Westside	x		
White Meconella (Meconella oregana)	OR-1 WA-2 FS-S	Oak woodlands in east Gorge.	x		
Northern Microseris (Microseris borealis)	WA-2 FS-S	Low to mid elevation wetlands.	x		
Columbia Monkey Flower (Mimulus jungermannioides)	OR-1 FS-S	Wet areas in east Cascades.	x		
Pulsifer's Monkey-flower (Mimulus pulsiferae)	WA-2 FS-S	Wet areas.	x		
Suksdorf's Monkey-flower (Mimulus suksdorfii)	WA-2 FS-S	Open, moist, or rather dry places.	x		
Branching Montia (Montia diffusa)	WA-2 FS-S	Up-turned root disturbances within the forest of Cascades.	x		
Howell's montia (Montia howellii)	FS-S	Multnomah County		x	
Marigold Navarretia (Navarretia tagetina)	WA-1 FS-S	Dry, open areas in east Gorge.	x		
Adder's-tongue (Ophioglossum pusillum)	OR-1 WA-1 FS-S	Meadows and woods.	x		
Fringed Grass-of-Parnassus (Parnassia frimbriata var. hoodiana)	WA-T FS-S	Bogs, stream banks, wet areas (Mult., Hood, and Washington Counties, Oregon).	x		
Barrett's Penstemon (Penstemon barrettiae)	OR-1 WA-2 FS-S Endemic	Rocky cliffs, talus slopes in east Gorge.	x		
Henderson phlox (Phlox hendersonii)	OR-2 FS-S	Hood River County	x		
Pine-foot (Pityopus californica)	WA-1 FS-S	Low elevation mixed conifer forest.	x		
Coral seeded popcorn flower (Plagiobothrys figuratus ssp. corallicarpus)	OR-1 FS-S	Open areas which are wet in spring and dry in summer.	x		
Canyon Bog-orchid (Platanthera sparsiflora)	WA-1 FS-S	Wet, boggy areas	x		
Pacific bluegrass (Poa gracillima var. multnomae)	Endemic	Mostly on s. side of Columbia Gorge in rocky, shaded cliff near water falls	x		
Loose-flowered Bluegrass (Poa laxiflora)	WA-2 FS-S	Moist woods to open rocky slopes up to mid-elevations	x		
Wheeler's Bluegrass (Poa nervosa var. nervosa)	WA-2 FS-S	Limited to lower Columbia River and adjacent tributaries. Open slopes, ridges and talus slopes.	x		
Great Polemonium (Polemonium carneum)	WA-1 FS-S	Mid elevation forests in west Gorge.	x		

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Brewer's Cinquefoil (Potentilla breweri)	WA-T FS-S	Moist to dry and exposed areas at middle and upper elevations.	x		
Diverse-leaved Cinquefoil (Potentilla diversifolia var. perdissecta)	WA-1 FS-S	Moist, shady and open areas, gravelly soils of glacially carved areas, , ledges and rocky slopes, stream banks.	x		
Villous cinquefoil (Potentilla villosa var. parviflora)	OR-2 FS-S	Hood River County	x		
Mountain Buttercup (Ranunculus populago)	WA-S FS-S	Moist meadows, stream terraces, riparian corridors, adjacent to a perennial streams and bogs.	x		
Obscure Buttercup (Ranunculus reconditus)	OR-1 WA-1 FS-S Endemic	Open grasslands or open areas in pine/oak woodlands. East Gorge.	x		
Thompson mistmaiden (Romanzoffia thompsonii)	FS-S	Seasonally wet, open, sunny cliffs and gravelly slopes.		x	
Columbia Yellow Cress (Rorippa columbiae)	OR-1 WA-1 FS-S	Mud flats along Columbia River	x		
Scheuchzeria (Scheuchzeria palustris var. americana)	OR-1 FS-S	Multnomah County	x		
Water clubrush (Scirpus subterminalis)	OR-2	Wasco County	x		
Scribner-grass (Scribneria bolanderi)	WA-1 FS-S	Dry, sandy to rocky soil.	x		
Hairy-stemmed Checker-mallow (Sidalcea hirtipes)	OR-1 WA-E FS-S	Mesic habitats associated with creeks and streams.	x		
Pale Blue-eyed Grass (Sisyrinchium sarmentosum)	OR-2 WA-1 FS-S	Wet/dry meadows at mid to high elevations	x		
Western Ladies' Tresses (Spiranthes porrifolia)	WA-2 FS-S	Open moist meadows.	x		
Kruhsea (Streptopus streptopoides)	OR-2	Hood River, Multnomah Counties	x		
Violet Suksdorfia (Suksdorfia violacea)	OR-2 FS-S	Moist cliffs at low elevations in Mid-Gorge.	x		
Oregon Sullivantia (Sullivantia oregana)	OR-1 WA-1 FS-S Endemic	Wet basalt cliffs near waterfalls at low elevations in the west Gorge.	x		
Columbia Kittentails (Synthyris stellata)	Endemic	Shaded banks, cliffs and ridges in the west Gorge.	x		
Strickland's Tauschia (Tauschia stricklandii)	OR-2 FS-S	Wet subalpine meadows in the west Gorge.	x		
Flat-leaved Bladderwort (Utricularia intermedia)	WA-2 FS-S	Slow moving water or streams.	x		
Lesser Bladderwort (Utricularia minor)	OR-2	Wasco County	x		
Siskiyou False Hellebore (Veratrum insolitum)	WA-1 FS-S	Dry open woods and brush in the middle Gorge.	x		
Dotted water-meal (Wolffia borealis)	FS-S	Freshwater ponds and slow flowing ditches in which water has somewhat high levels of organic material. Occurs in natural ponds as well as in log and sewage treatment ponds.	x		
Columbia Water-meal (Wolffia columbiana)	OR-2	Freshwater lakes, ponds, and slow streams below 650 feet.	x		
FUNGI					
Giant polypore fungus Bridgeoporus nobilissimus	OR-1	On boles of noble firs. Multnomah County	X		No
Helvella crassitunicata	OR-2	Fungus. Hood River County	X		Yes
Hygrophorus caeruleus	OR-2	Fungus. Hood River County	X		Yes
Macowanites mollis	OR-1	Fungus. Multnomah County	X		No

SPECIES (Population Segment)	STATUS	Usual Habitat in OR/WA	GMA/SMA	SMA Only	Suitable Habitat
Phaeocollybia californica (OR only)	OR-1	Fungus. Multnomah County	X		No
Phaeocollybia oregonensis	OR-1	Fungus. Multnomah County	X		No
BRYOPHYTES					
Conostomum tetragonum	OR-2	Moss, Hood River County	x		Yes
Gymnomitrion concinnatum	OR-2	Liverwort, Hood River and Multnomah Counties	x		Yes
Polytichium sphaerothecium	OR-2	Moss, Hood River County	x		Yes
Rhizomnium nudum (OR only)	OR-2	Moss, Very moist humus or soil, typically near seepage in conifer forest. Wasco County	x		No
Tetraphis geniculata	OR-2	Moss OR/WA Moist forests with large down logs	x		Yes

APPENDIX B

PHOTOGRAPHS

Historic Columbia River Highway State Trail National Scenic Area Permit - Natural Resource Elements Conflict Memorandum

Hood River County, Oregon

1

2

MB&G	HISTORIC COLUMBIA RIVER HIGHWAY STATE TRAIL NATIONAL SCENIC AREA PERMIT - NATURAL RESOURCE ELEMENTS CONFLICT MEMORANDUM
Mason, Bruce & Girard, Inc. Photo Date: April 25, 2011	1. View to the east of representative mature forest habitat (MF-2) within the Project corridor. Note the forested cliff in the photo left background. 2. View to the west of a representative view of a concentration of snags (SL-2) within the Project corridor. A pileated woodpecker (AN-2) was observed in the vicinity of these snags.

3

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MB&G	HISTORIC COLUMBIA RIVER HIGHWAY STATE TRAIL NATIONAL SCENIC AREA PERMIT - NATURAL RESOURCE ELEMENTS CONFLICT MEMORANDUM
Mason, Bruce & Girard, Inc. Photo Date: April 28, 2011	3. View to the southeast of representative talus habitat (TA-19) and observation point for several Larch Mountain salamanders (*Plethodon larselli*) (AN-3). 4. View of a Larch Mountain salamander adult observed within the survey corridor (AN-3).

5

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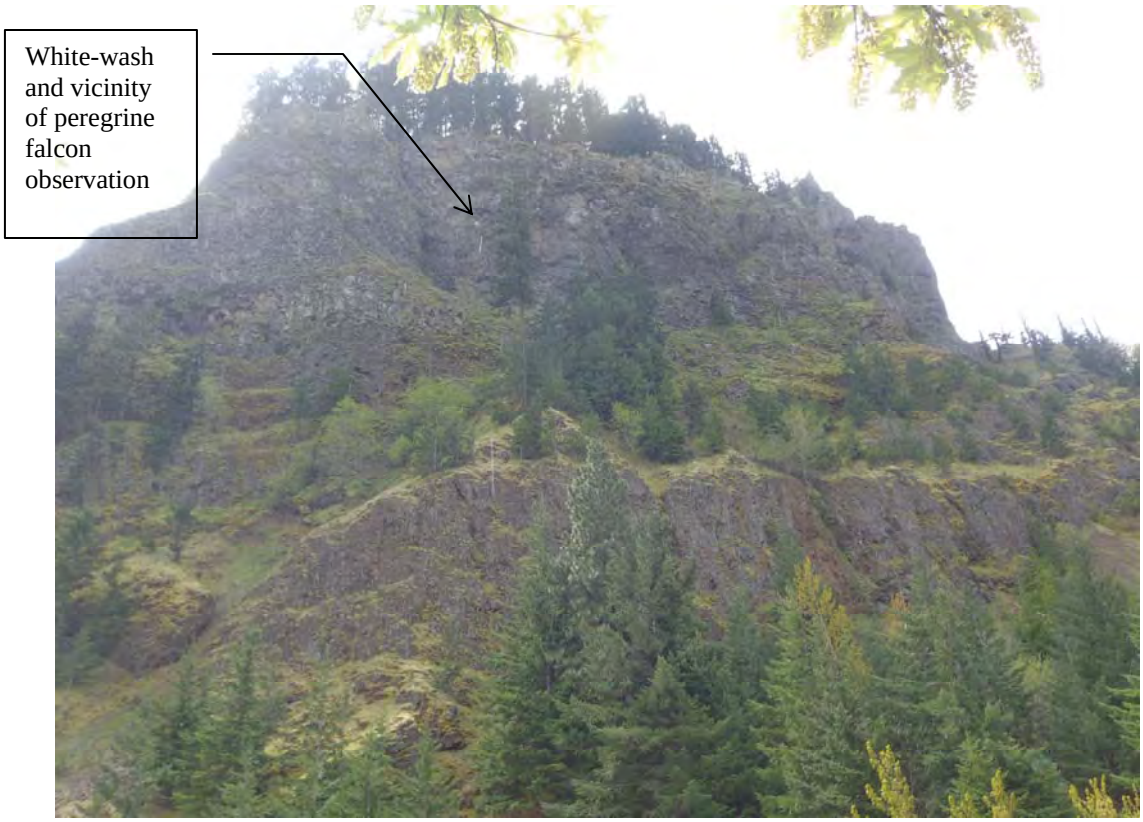

MB&G	HISTORIC COLUMBIA RIVER HIGHWAY STATE TRAIL NATIONAL SCENIC AREA PERMIT - NATURAL RESOURCE ELEMENTS CONFLICT MEMORANDUM
Mason, Bruce & Girard, Inc. Photo Date: April 28 & May 2, 2011	5. View to the east showing representative cliff habitat (CL-3) adjacent to Highway 84. The culvert in the lower portion of the photo conveys an unnamed perennial stream (ST-2) north under Highway 84. 6. View to the south of Mitchell Point (CL-24) and the location of a peregrine falcon (*Falco peregrinus*) (AN-4) observation adjacent to the Project corridor.

7

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MB&G	HISTORIC COLUMBIA RIVER HIGHWAY STATE TRAIL NATIONAL SCENIC AREA PERMIT - NATURAL RESOURCE ELEMENTS CONFLICT MEMORANDUM
Mason, Bruce & Girard, Inc. Photo Date: April 28, 2011	7. View to the southwest showing Lindsey Creek (ST-4) and representative forested talus habitats on the adjacent stream banks and hillside (TA-11 and TA-12). Note the biologist at the approximate trail crossing location. 8. View to the west showing a concentrated area of logs (SL- 3) within the Project corridor.

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MB&G	HISTORIC COLUMBIA RIVER HIGHWAY STATE TRAIL NATIONAL SCENIC AREA PERMIT - NATURAL RESOURCE ELEMENTS CONFLICT MEMORANDUM
Mason, Bruce & Girard, Inc. Photo Date: April 28 and May, 2011	9. View to the northwest showing the location of wetland WL-10 located on the east side of Mitchell Point. Note the survey corridor is centered on the existing gravel roadway. 10. View to the east showing the Project corridor occupying an existing road bed. Note standing water demarcating the location of wetland WL-4 abutting the toe of fill slope in the photo left.

11

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MB&G	HISTORIC COLUMBIA RIVER HIGHWAY STATE TRAIL NATIONAL SCENIC AREA PERMIT - NATURAL RESOURCE ELEMENTS CONFLICT MEMORANDUM
Mason, Bruce & Girard, Inc. Photo Date: April 28 and May, 2011	11. View to the east showing a biologist collecting data on an unnamed stream (ST-16) immediately west of Mitchell Point. Note the heavy colonization of English ivy (*Hedera helix*) (NX-13) within the stream riparian zone. 12. View to the west of representative Oregon white oak habitat at the eastern extent of the Project corridor within Ruthton Park (OW-1).