UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/00987

October 25, 2002

Mr. Fred Patron
Federal Highway Administration
The Equitable Center, Suite 100
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on the Effects of the Cascade Highway South (Highway 213) at South Beavercreek Road Project, City of Oregon City, Clackamas County, Oregon.

Dear Mr. Patron:

Enclosed is a biological opinion (Opinion) pursuant to section 7 of the Endangered Species Act (ESA) prepared by the National Marine Fisheries Service (NOAA Fisheries), on the effects of the proposed Cascade Highway South (Highway 213) at South Beavercreek Road Project, City of Oregon City, Clackamas County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*) or LCR chinook salmon (*O. tshawytscha*). As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Art Martin of my staff in the Oregon Habitat Branch at 503.231.6848.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Molly Cary - ODOT
Diana Hwang - USFWS
Randy Reeve - ODFW

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Cascade Highway South (Highway 213) at South Beavercreek Road Project,
City of Oregon City,
Clackamas County, Oregon

Agency:	Federal Highway Administration
Consultation Conducted By:	NOAA Fisheries, Northwest Region
Date Issued:	October 25, 2002
Issued by:	for Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	**2002-00097**

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1. ENDANGERED SPECIES ACT

1.1 Background

On August 16, 2002, the National Marine Fisheries Service (NOAA Fisheries) received a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for the Cascade Highway South (Highway 213) at South Beavercreek Road Project, City of Oregon City, Clackamas County, Oregon. The Oregon Department of Transportation (ODOT) is the designated non-federal representative of the FHWA. The City of Oregon City (City) is the applicant, and OBEC Consulting Engineers, Inc., is the prime consultant for the City and is responsible for the project design.

In the August 16, 2002, letter and accompanying biological assessment (BA), the FHWA requested formal consultation for Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*) and LCR chinook salmon (*O. tshawytscha*). The FHWA has determined that listed evolutionarily significant units (ESUs) of Columbia basin salmonids may occur within the project area, and that the proposed projects are "likely to adversely affect" (LAA) these species.

This biological opinion (Opinion) is based on the information presented in the BA, site visits, and discussions with ODOT, the Oregon Department of Fish and Wildlife (ODFW), and project consultants.

This Opinion considers the potential effects of the proposed action on LCR steelhead and LCR chinook salmon. LCR steelhead were listed as threatened on March 19, 1998 (63 FR 13347) and protective regulations issued on July 10, 2000 (65 FR 42422). LCR chinook salmon were listed as threatened on March 24, 1999 (64 FR 14308) and protective regulations issued on July 10, 2000 (65 FR 42422). This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

1.2 Proposed Action

The proposed action includes the construction of: (1) A combination of additional turn lanes, turn pockets, bike lanes, sidewalks, curbside planters, and retaining walls; (2) a segment of multi-modal path; (3) replacement of a driveway access; (4) a Newell Creek crossing; (5) the extension of the Newell Creek culvert, all at, or in the vicinity of, the intersections of Highway 213 at Beavercreek Road and Beavercreek Road at Maplelane Road; (6) construction of a stormwater treatment system; and (7) replacement of the Holcomb Creek culvert at the South Redland Road crossing for fish passage.

The project BA includes a set of conservation measures or best management practices (BMPs) designed to minimize adverse effects to steelhead and chinook salmon and their habitats. These BMPs are described on pages 34-39 of the BA. Specific BMPs for in-water work, culvert extension and replacement, bank work, revegetation, highway construction, clearing and grubbing, erosion control, hazardous materials, and site-specific conservation measures are

included. NOAA Fisheries regard these BMPs as integral components of the project and considers them to be part of the proposed action.

Direct effects to listed species may occur at the project sites and may extend upstream or downstream based on: (1) The potential for impairing fish passage; (2) change to stream hydraulics; (3) sediment and pollutant discharge; (4) risk of chemical contamination of the aquatic environment; (5) stormwater effects; and (6) the extent of riparian habitat modifications. Indirect effects to listed species may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities include the immediate watershed where the proposed action will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of Newell and Holcomb Creeks, extending upstream to the project disturbance limits, and downstream one mile below the project disturbance limits. Both Newell and Holcomb Creeks are tributaries of the lower Abernethy Creek watershed. Other areas of the Abernethy Creek watershed will not be directly affected.

All in-water work activities will occur during the Oregon Department of Fish and Wildlife's (ODFW) preferred in-water work timing guideline[1] of July 15 through September 30. Any extensions or alterations to the standard in-water work timing will require the written concurrence of a NOAA Fisheries biologist.

1.2.1 General Road Reconstruction

The proposed action will include widening of the intersections of Highway 213 at Beavercreek Road and Beavercreek Road at Maplelane Road to accommodate new or reconstructed turn lanes, turn pockets, bike lanes, sidewalks, curbside planters, and retaining walls, as well as construction of a segment of multi-modal path, and the replacement of a driveway access. Construction activities will include: (1) Grinding of existing asphalt; (2) construction or reconstruction of new and existing subgrade and shoulders; (3) installing cast-in-place sidewalks and retaining walls; and (4) installing guardrails and drainage curbs. The finished project will result in a total of 0.89 hectares (ha) of new impervious surface. General reconstruction and road widening will result in the loss of 21 various native and non-native upland trees from the Newell and Holcomb Creek riparian areas within the action area.

[1]Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000)(identifying work periods with the least impact on fish)(http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

1.2.2 Newell Creek Culvert Extension

Newell Creek currently passes under Highway 213 through a 1.2 meter (m) diameter by 50 m long corrugated metal pipe (CMP) culvert. The proposed action will require a culvert extension of approximately 7 m to allow for intersection upgrades. The culvert extension would occur to the upstream or eastern end of the existing CMP culvert.

The culvert extension would require the in-water work area to be isolated from the flowing water of Newell Creek using sandbag coffer dam(s) and a gravity feed or pumped bypass system to collect and convey Newell Creek past the isolated work area. No fish rescue or salvage effort would be necessary as recent ODFW fish surveys indicate no native fishes persist above the Highway 213 culvert crossing.

The current Newell Creek culvert crossing at Highway 213 is a total fish barrier to upstream migration. Due to the limited and poor quality of fish habitat available above the crossing, the proposed action includes an approved request for a fish passage waiver as required per House Bill (HB) 3002, from ODFW, including alternate fish passage mitigation on Holcomb Creek as discussed in section 1.2.5 of this Opinion.

1.2.3 Newell Creek Culvert Replacement

The proposed action includes reconstruction of an existing driveway access across Newell Creek upstream of the Highway 213 culvert crossing at a private residence. The existing 0.76 m diameter by 2.43 m long smooth steel pipe culvert would be replaced with two 0.76 m concrete pipes. The existing culvert crossing consists of a timber driving surface while the reconstructed stream crossing would be lengthened by 0.33 to 0.66 m and would have an asphalt driving surface.

The culvert replacement would require the in-water work area to be isolated from the flowing water of Newell Creek using sandbag coffer dam(s) and a gravity feed or pumped bypass system to collect and convey Newell Creek past the isolated work area. No fish rescue or salvage effort would be necessary as recent ODFW fish surveys indicate no native fishes persist above the Highway 213 culvert crossing.

1.2.4 Stormwater Treatment System

The 0.89 ha of new impervious surfaces may result in increases of stormwater runoff within drainage areas of Newell Creek. The FHWA proposes to construct a water quality treatment system of curbs, ditches, culverts, two water quality manholes, and a water quality/quantity detention pond that will function to convey and treat stormwater runoff from an equivalent of new and existing impervious surface equal to at least 350% of the new impervious surface on the project (0.89 ha) within the action area in the Newell Creek drainage. Stormwater runoff will be collected and routed from portions of the new and existing highway impervious surface and

portions of the adjacent Berry Hill Shopping Center impervious surfaces. The water quality treatment system will receive runoff from up to, and including, the water quality storm event[2].

Construction of the water quality/quantity treatment detention pond and associated riparian plantings will require the purchase and demolition of three existing homes and four existing tax lots along the north side of Beavercreek Road. The water quality/quantity detention pond would be designed to function as a detention facility to attenuate increased peak discharge of stormwater from new impervious surfaces. Detention rates will meet or exceed local Clackamas County stormwater standards: (1) The 25-year, 24-hour storm post-development peak rate will be reduced to the pre-development 5-year, 24-hour storm peak discharge rate; and (2) the 2-year, 24-hour storm post-development peak rate will be reduced to ½ the pre-development 2-year, 24-hour storm peak discharge rate. The bottom of the stormwater treatment facility will be specifically designed to maximize the permeability of existing soils to enhance stormwater infiltration.

1.2.5 Holcomb Creek Culvert Replacement

The replacement of the current Holcomb Creek culvert crossing under South Redland Road is required as alternate fish passage mitigation per the ODFW-approved fish passage waiver for the Newell Creek culvert extension. The current culvert is an 1.8 m by 1.8 m reinforced concrete box culvert (RCBC), and is a partial blockage to upstream fish passage. The current RCBC will be replaced with a 4.8 m wide by 3.3 m high multi-plate steel arch culvert that will be counter sunk at a minimum of two feet into the streambed in order to provide fish passage for adult and juvenile salmonids at the South Redland Road culvert crossing over Holcomb Creek.

The culvert replacement will require excavation of the existing roadway and culvert; work area isolation and fish rescue and salvage; and construction of the new culvert and roadway, including reconstruction of the streambed. Streambed reconstruction would use native streambed materials within the new culvert to provide a continuous streambed throughout the new structure. Specifically, boulders will be incorporated along the new streambed channel within the culvert to simulate natural streambed characteristics, to define a sinuous low flow channel, and to provide hydraulic characteristics to ensure fish passage for adult and juvenile fish throughout the year. The new culvert will not lengthen the stream crossing, and the new roadway will not increase the amount of new impervious surface at the stream crossing.

Culvert replacement may also require construction of temporary access roads on the either or both end(s) of the culvert. The temporary access road(s) would be constructed by placing clean aggregate over geotextile to minimize impacts to riparian vegetation, and to facilitate complete removal and site restoration at the end of the project. Culvert replacement may require the removal of existing riparian trees and vegetation. Any trees removed as a result of the culvert

[2]For this project the water quality storm event is defined as 2/3 of the 2-year 24-hour storm based on studies by the City of Portland. The FHWA assumes this will encompass at least 95% of the annual precipitation for the project area.

replacement will be replaced at a 2:1 ratio with native conifer plantings and temporary access roads will be restored to pre-project grade and seeded and mulched to restore site conditions.

The culvert replacement would require the in-water work area be isolated from the flowing water of Holcomb Creek using sandbag coffer dam(s) and a gravity feed or pumped bypass system to collect and convey Holcomb Creek past the isolated work area. Fish salvage efforts would be necessary as recent ODFW fish surveys indicate Federally- and state-listed salmonids and other native fishes persist above and below the Holcomb Creek culvert crossing. A specific work area isolation plan will be developed and implemented with the collaboration of ODFW and NOAA Fisheries biologists to ensure that best management practices are employed and potential for take of listed fish is minimized during fish rescue and salvage efforts.

1.3 Biological Information

Essential features of salmonid habitat required for the survival and recovery of listed species are water quality, water quantity, water temperature, water velocity, substrate, cover/shelter, food, space, and safe passage conditions (NMFS 1996). Together, these factors determine the biotic composition, structure, function, and stability of aquatic and riparian ecosystems and their ability to support the biological requirements of the species (Spence *et al.* 1996).

Pacific anadromous salmonid populations in the Pacific Northwest have evolved under the unimpaired flow regimes historically provided by their natal streams. The flow regimes reflect the dynamic character of flowing water systems, which is determined by the quantity, timing and natural variability of stream flow (Reiser 1989). These characteristics drive many of the physical processes in watersheds that are important to salmonid survival and conservation. Unimpaired flow regimes benefit salmonids in two critical ways: (1) They provide temporally and spatially appropriate water quantities to support specific life stages, and (2) they ensure self-sustaining ecosystem processes by which salmonid habitat is created and maintained over time.

Dynamic hydraulic, geomorphic, and ecologic processes must be maintained to provide salmonids a high probability of access to sufficient quantities of quality habitats for timely and successful completion of each and every life stage in freshwater (Bisson *et al.* 1997). However, given inter-annual hydrologic variability, even under an unimpaired flow regime, the quantity and quality of freshwater habitat necessary to obtain food and grow, escape predation, resist disease, migrate, and survive extreme environmental events is highly variable and can readily become limiting (Bjornn and Reiser 1991). Stream-rearing salmonids must survive extended periods in freshwater through winter and summer rearing bottlenecks (Bjornn and Reiser 1991). In addition, environmental conditions during extensive downstream and upstream migrations during juvenile and smolt life stages and again during adult and pre-spawning life stages can also significantly limit survival (NMFS 2001).

1.4 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of defining the biological requirements and current status of the listed species, and evaluating the relevance of the environmental baseline to the species' current status. Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action. For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action.

1.4.1 Biological Requirements

The first step in the method NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the biological requirements of the species most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species by taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list LCR steelhead and LCR chinook salmon for ESA protection and also considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for LCR steelhead and LCR chinook salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are habitat characteristics that function to support successful spawning, rearing and migration. These involve adequate fish passage, water quality, water quantity, substrate, shade and cover. Because the current status of the LCR steelhead and LCR chinook salmon, based upon their risk of extinction, has not significantly improved since the species were listed, adverse impacts to these biological requirements have the potential to be significant.

1.4.2 Lower Columbia River Steelhead

Although limited data are available to assess population numbers or trends, NOAA Fisheries believes that many steelhead stocks comprising the LCR steelhead ESU are depressed compared with past abundance. Biological information is described in Busby *et al.* (1996), NMFS (1997), and Federal Register (March 19, 1998, 63 FR 13347).

Adult winter steelhead in this ESU typically reenter the river systems starting in November through the end of March. Peak reentry is in January and February. The adults spawn soon after reentering. The fry emerge from April and into July, and then rear in freshwater for 1 to 3 years. The juvenile fish smolt in the spring and emigrate downstream to the Pacific Ocean from March through June during high spring flows. Summer steelhead reenter freshwater as sexual immature in June and July, and require several months of maturation before spawning. The summer steelhead overwinter in freshwater until they spawn in late winter to early spring. In the LCR steelhead ESU, most spawning occurs from March through May.

No estimates of historical (pre-1960s) abundance data are available for this ESU (Busby *et al.* 1996). Estimates from the 1980s showed that 75% of the total run was of hatchery origin. Habitat degradation is common throughout the ESU, primarily due to urbanization and logging. The habitat degradation affects summer steelhead more than winter steelhead. Past hatchery practices are a major threat to the genetic integrity of steelhead in the ESU. Both currently and historically, these creeks, within the action area, supported runs of winter steelhead.

1.4.3 Lower Columbia River Chinook Salmon

Although limited data are available to assess population numbers or trends, NOAA Fisheries believes that many stocks comprising the LCR chinook salmon ESU are depressed compared with past abundance. The listing status and biological information for LCR chinook salmon are described in Myers *et al.* (1998) and final rules from the Federal Register (March 24, 1999, 64 FR 14308).

The ESU includes all naturally-spawned populations of chinook salmon from the Columbia River and its tributaries from its mouth at the Pacific Ocean upstream to a transitional point between Washington and Oregon east of the Hood River and the White Salmon River, and includes the Willamette River to Willamette Falls, Oregon, exclusive of spring-run chinook salmon in the Clackamas River. Major river basins containing spawning and rearing habitats for this ESU comprise approximately 6,338 square miles in Oregon and Washington.

Fall chinook salmon return as adults in the late summer or fall. Adult fall chinook return to the freshwater from late August through late September. Spawning occurs over the same period with the return of adults and spawning both peaking in September. Spawning occurs in deeper waters or small tributary streams, and eggs then hatch the following spring. Juveniles start their downstream migration to the ocean in March and April, and may spend a few weeks to a few

months rearing in freshwater before moving slowly down the river as subyearlings. This journey to the Pacific Ocean may require 2 to 4 months.

No estimates of historical abundance are available for this ESU. The current production appears to be predominantly hatchery-driven, with few identifiable native, naturally-reproducing populations (Myers *et al.* 1998). Long- and short-term trends in abundance of individual populations are mostly negative, some severely so. Freshwater habitat is in poor condition, with problems related to forestry practices, urbanization and agriculture.

Historically, chinook salmon were believed to occur in both Newell and Holcomb Creeks and throughout the lower Abernethy Creek watershed, although no recent documentation of occupancy exists. Declines in chinook salmon in the watershed are likely due to fish passage problems and habitat degradation caused by urbanization and other land uses such as forestry and agriculture in the watershed.

1.4.4 Environmental Baseline

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The action area is defined as all areas (bankline, adjacent riparian zone, and aquatic area) to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).

Direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. For this consultation, the action area is within the Abernethy Creek watershed as described in section 1.2 of this Opinion.

Abernethy Creek Watershed.
The Abernethy Creek watershed is within the Willamette Valley ecoregion. The following discussion is from the Oregon Progress Board (2000) *Oregon State of the Environment Report*:

> The ecoregion is characterized by broad, alluvial flats and low basalt hills, with soils of deep alluvial silts from river deposits and dense heavy clays from pluvial deposits in the valley bottom's numerous oxbow lakes and ponds. Seventy percent of the state's population lives within the ecoregion, and consequently the landscape of the valley has changed with development. The Willamette Valley ecoregion is largely in private ownership: agriculture, urban and forest land dominate. Over the past 150 years, the prairies have been largely converted to farmland, as have most of the riparian forests and wetlands. The rivers have been dammed and channelized to reduce flooding. Natural processes such as fire and flooding have been almost entirely excluded. Trends in riparian condition in the Willamette Valley have shown an 80% reduction in total

riparian area since the 1850s. The Willamette Restoration Initiative reports an estimated 72% of the original riparian and bottomland forest is gone, as well as an estimated 99% of wet prairies, and 87% of upland forests at the margins of the valley.

The Abernethy Creek watershed flows 26 kilometers from its headwaters to its confluence with the Willamette River in Oregon City, Oregon. The Abernethy Creek watershed been affected by timber harvest, agriculture and urbanization. Land use is primarily industrial timber and residential development in the upper watershed and commercial/industrial/railroad in the lower watershed. The density of paved roads is high and, in several locations, paved surfaces abut the creek.

Habitat complexity is limited in the lower watershed. The streams generally lack secondary channels, undercut banks, and large woody material to provide good instream structure for summer rearing and winter refuge. Fish cover is limited to boulders and pool depth, although depths are generally shallow. In many reaches, the channel has been straightened or dredged. Large woody material in the channel is rare.

Fish passage is poor in Abernethy Creek watershed. A 195-meter long culvert at the mouth of Abernethy Creek is a major obstacle. Passage is possible at some higher flows only. Many culverts within the watershed are passage barriers at various times of the year. Summer low flows can effectively dewater some culverts, and others culverts are problematic at various flows. Besides the culverts, small dams and weirs, screened and unscreened pumps, and diversions are present throughout the watershed.

Newell Creek.
The Newell Creek channel within, and upstream of the action area is primarily trapezoidal. The substrate consists of mostly silts, clays and gravels. Gravel embeddedness with silt and fine organic matter appears to preclude this reach as adequate spawning habitat for salmonids. The streambank and bed appear stable. Heavy urbanization of upper Newell Creek has resulted in simplified habitat, lengthy reaches of stream channel converted into subterranean stormwater collection and conveyance pipe systems, and a generally degraded hydrologic regime. This reach currently does not function as native fish habitat as all native fishes have been extirpated.

Conversely, the Newell Creek channel downstream of the action area remains in a more functional condition with a relatively intact native riparian corridor and highly complex in-stream fish habitat. Habitat, water quality and water quantity remain adequate to support naturally reproducing populations of resident and anadramous fish including LCR steelhead.

Holcomb Creek.
The Holcomb Creek channel, adjacent to, and within the action area, is low gradient and meandering with a variety of rural residential, forestry and agricultural land use influences. The substrate consists of mostly silts, gravels and cobbles with average embeddedness of approximately 30%, based on visual field reconnaissance site visits. Abundance of large woody debris and in-stream habitat complexity ranges from low to moderate. Riparian corridors

consisting of a variety of native and non-native trees, shrubs and various riparian species remain along portions of the channel.

Consistent with the entire Abernethy Creek watershed, artificial fish passage impediments greatly reduce the available spawning, rearing and migration habitat available along Holcomb Creek and Potter Creek, Holcomb Creek's chief tributary. Although development and land use influences have degraded habitat, water quality and the basic hydrologic regime, adequate conditions remain for Holcomb Creek to support naturally-reproducing populations of resident and anadramous fish including LCR steelhead

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

Creeks and rivers are dynamic systems that naturally alter their courses in response to many physical processes. Roadways and other structures constructed along waterways are subject to flooding and undercutting as a result of these natural changes in the stream course. Structural hardening of embankments is the traditional means of protecting these structures along waterways. The structural hardening also results in impacts to the waterway.

Fish habitats are enhanced by the diversity of habitats at the land-water interface and adjacent bank (USACE 1977). Streamside vegetation provides shade that reduces water temperature. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flow events, retain bedload materials, and reduce flow velocity. Retaining walls and steepened fill slopes have been incorporated into the proposed action to limit the amount of fill and need for bank hardening around the culvert extension and replacement culverts.

Sedimentation.
Potential impacts to listed salmonids from the proposed action include both direct and indirect effects. Potential direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting for construction. Potential indirect effects include behavioral changes resulting from elevated turbidity level (Sigler *et al.* 1984, Berg and Northcote 1985, Whitman *et al.* 1982, Gregory 1988), during river bank habitat alterations.

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorus fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1988).

Fish that remain in turbid, or elevated TSS, waters experience a reduction in predation from piscivorus fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade off (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991).

Excavation in the stream channel associated with the culvert work and other in-water work in Newell and Holcomb Creeks may elevate the risk for turbidity and sediment transport within the action area. Because the potential for turbidity should be localized and brief, the probability of direct mortality is negligible. In-water work timing during the preferred in-water work timing period of July 15 through September 30, work area isolation, and fish removal would be employed as necessary, depending on presence of fish and/or flowing water to minimize the risk from turbidity and sediment transport during in-water work activities.

Chemical Contamination.
As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of the back-hoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non target riparian vegetation (Spence *et al.* 1996).

Excavation in the stream channel associated with the culvert work will elevate the risk for chemical contamination of the aquatic environment within the action area. Because the potential for chemical contamination should be localized and brief, the probability of direct mortality is negligible. In-water work timing during the preferred in-water work timing period of July 15 through September 30, work area isolation, and fish removal would be employed as necessary, depending on presence of fish and/or flowing water to minimize the risk from chemical contamination during in-water work activities. The contractor would also be required to develop, implement and monitor a site specific pollution control plan in an effort to further minimize risk to the aquatic environment.

Fish Rescue, Salvage and Relocation.
As a result of the proposed action, culvert replacement activities at the Holcomb Creek culvert would require potential direct handling of listed salmonids during fish removal. The BA estimates the potential to capture and relocate up to 20 LCR steelhead or LCR chinook salmon juveniles during work area isolation and fish rescue and salvage efforts during the Holcomb Creek culvert replacements. The BA further assumes up to a 5% direct or delayed mortality rate from capture and relocation stress could occur during fish salvage and removal resulting in lethal take of up to one LCR steelhead or LCR chinook salmon juvenile.

Water Quality Stormwater Effects.
The potential exists for an increase in polluted runoff into Newell Creek within the project area from the proposed 0.89 ha of new impervious surface (Booth and Jackson 1997). However, the proposed stormwater runoff treatment system will more than offset any potential increase in adverse effects to water quality as a result of the proposed action. The proposed stormwater treatment system will treat stormwater runoff from an equivalent of 350% of the 0.89 ha of new impervious surfaces. This stormwater treatment system includes construction of various engineered and non-engineered features designed to remove of at least 30 to 70%, depending on the specific facility, of TSS, oil, grease and floatables from storms up to, and including, a water quality storm event. Treated stormwater that does not infiltrate into the soils will then discharge into the Newell Creek riparian area or directly into Newell Creek. The proposed riparian plantings, as a part of the compensatory mitigation, will also help to improve water quality through filtration and infiltration of stormwater runoff from new and existing impervious

surfaces. The proposed project is expected have a net beneficial effect on water quality in Newell Creek in the long term.

Hydrologic Stormwater Effects.
The potential exists for reduced evapotransporation and infiltration opportunities resulting in an increase in the magnitude and duration of peak discharge and decreased summer base flow from the proposed 0.89 ha of new impervious surface (Booth and Jackson 1997). The proposed riparian plantings, as a part of the compensatory mitigation, will help to attenuate peak flows through filtration, infiltration, and evapotransporation of stormwater runoff from new and existing impervious surfaces. The proposed stormwater treatment system, coupled with the proposed riparian plantings along Newell Creek will more than offset any potential adverse effects to hydrology from the proposed action.

Riparian Vegetation.
Woody riparian vegetation provides large wood to the stream, which encourages the creation of rearing and spawning areas. Riparian vegetation also provides water quality functions (*e.g.* temperature control and nutrient transformation), bank stability, detritus (insect and leaf input, small wood for substrate for insects, *etc.*), microclimate formation, floodplain sediment retention and vegetative filtering, and recharge of the stream hyporheic zone. The proposed action will result in the removal of 21 native and non-native trees along the Newell and Holcomb Creek riparian corridors. The compensatory mitigation plan will result in the replanting of various native conifers at a 2:1 ratio for trees removed in the riparian corridors. The immediate gain of plantings and eventual gain of a mature woody riparian buffers along the Newell and Holcomb Creek riparian corridor will increase the ability of the riparian area to support natural stream processes, including processes essential to supporting salmon in the short term and long term.

Stream Hydraulics.
The construction of the new culvert crossing on Holcomb Creek would decrease hydraulic constriction, improve fish passage, and improve general ecological connectivity such as sediment transport and large woody debris transport along Holcomb Creek.

Fish Passage.
Although, downstream fish passage may be temporarily impaired by pumping Holcomb Creek water past the isolated work area, during culvert replacement, the proposed action would result in improved year-round fish passage conditions for both adult and juvenile salmonids and native fishes, including LCR steelhead, within the Holcomb Creek portion of the action area. As a direct result, long-term beneficial effects to fish passage are expected to persist along Holcomb Creek.

1.5.2 Interrelated Effects

Interrelated effects include effects from actions that are part of the larger action and depend on the larger action for justification. Many overhead and underground utilities run adjacent to Highway 213, South Beavercreek Road and South Redland Road and may need to be temporarily or permanently moved to facilitate the proposed action. The potential for movement of these various utilities will require ground disturbance. However, these potential adverse effects are not different or beyond the scope of those analyzed in section 1.5.1 above.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these action are not considered cumulative to the proposed action.

NOAA Fisheries is not aware of any specific future non-federal activities within the action area that would cause greater impacts to listed species than presently occurs. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

1.6 Conclusion

NOAA Fisheries has determined that, based on the available information, the proposed action is not likely to jeopardize the continued existence of LCR steelhead or LCR chinook salmon. NOAA Fisheries used the best available scientific and commercial data to analyze the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NOAA Fisheries applied its evaluation methodology to the proposed action and found that it could cause slight, short-term degradation of anadromous salmonid habitat due to increases in sedimentation, turbidity, and temperature. Furthermore, NOAA Fisheries expects that construction related effects and work isolation activities could alter normal feeding and sheltering behavior of juvenile LCR steelhead or LCR chinook salmon should any be present in the action area during the proposed action. NOAA Fisheries expects some direct or delayed mortality of juvenile LCR steelhead or LCR chinook salmon as a result of fish rescue, salvage and relocation activities should any be present in the action area during the proposed action. NOAA Fisheries expects beneficial water quality and hydrologic effects from the attenuation of peak flows and increased potential base flow as a result of the stormwater treatment measures. NOAA Fisheries expects long-term beneficial effects of improved fish passage and hydraulic conditions as a result the Holcomb Creek culvert replacement.

NOAA Fisheries' conclusions are based on the following considerations: (1) Most of the proposed work will occur outside of the flowing waters of the Newell and Holcomb Creeks

(*i.e.*, in the dry); (2) in-water work will occur during the ODFW preferred in-water work period of July 15 through September 30, which NOAA Fisheries expects to minimize the likelihood of LCR steelhead or LCR chinook salmon presence in the action area due to low flow and warm water conditions; (3) any increases in sedimentation and turbidity in the project reach of the Newell and Holcomb Creeks will be short-term and minor in scale, and would not change or worsen existing conditions for stream substrate in the action area; and (4) long-term, beneficial effects will result from the proposed stormwater treatment system and the Holcomb Creek culvert replacement.

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species to by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of listed species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the actions covered by this Opinion are reasonably certain to result in incidental take of LCR steelhead or LCR chinook salmon because of potential adverse effects from increased sediment levels, chemical contamination, temperature increases, and the potential for direct incidental take during in-water work. Handling of juvenile steelhead or chinook salmon during the work isolation process may result in incidental take of individuals if adequate water quality allows juvenile salmonids to be present during the construction period. NOAA Fisheries anticipates non-lethal incidental take of up to 20 individuals, of which, lethal take of 1 juvenile steelhead or chinook salmon could occur as a result of the fish rescue, salvage and relocation activities covered by this Opinion. The potential adverse effects of the other project components on population levels are largely unquantifiable and NOAA Fisheries does not expect them to be measurable in the long term. The extent of authorized take is limited to

LCR steelhead or LCR chinook salmon in Newell or Holcomb Creeks and is limited to that caused by the proposed action within the action area.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to require the contractor to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(a)(2) may lapse.

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. The FHWA shall:

1. Minimize the likelihood of incidental take from culvert replacement or streambank alteration actions by directing the contractor to use an approach that maximizes ecological functions and the best available bioengineering technology.

2. Minimize the likelihood of incidental take from activities involving highway construction, culvert extension and replacement, temporary access roads, use of heavy equipment, earthwork, site restoration, or that may otherwise involve in-water work or affect fish passage by directing the contractor to avoid or minimize disturbance to riparian and aquatic systems.

3. Minimize the likelihood of incidental take from in-water work activities by ensuring that the in-water work activities (culvert extension and channel relocation) are isolated from flowing water.

4. Complete a comprehensive monitoring and reporting program to ensure implementation of these conservation measures are effective in minimizing the likelihood of take from permitted activities.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To implement reasonable and prudent measure #1 (channel relocation or streambank alteration actions), the FHWA shall ensure that:

    a. The use of rock and riprap is avoided or minimized.

i. Rock will be individually placed in a way that produces an irregularly contoured face to provide velocity disruption. No end dumping will be allowed.

b. Any instream large wood or riparian vegetation that is moved or altered during construction will stay on site or be replaced with a functional equivalent.

c. Where feasible, the bankline will be revegetated using natural vegetation.

2. To implement reasonable and prudent measure #2 (construction and channel relocation), the FHWA shall ensure that:

a. Project design. Alteration or disturbance of the stream banks and existing riparian vegetation will be minimized.

b. In-water work. All work within the active channel will be completed within the in-water work period of July 15 - September 30 for the site as recommended by ODFW[3]. Extensions of the in-water work period must be concurred with by NOAA Fisheries.

c. Pollution and erosion control plan. A pollution and erosion control plan (PECP) will be developed for the project to prevent point-source pollution related to construction operations. The PECP will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations:

i. Measures will be taken to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas.

ii. A description of the hazardous products or materials that will be used, including inventory, storage, handling, and monitoring.

iii. A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on site, proposed methods for disposal of spilled materials, and employee training for spill containment.

iv. Measures will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

d. Pre-construction activities. Prior to significant alteration of the action area, the following actions will be accomplished:

i. Boundaries of the clearing limits associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

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[3] Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000)(identifying work periods with the least impact on fish)(http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

ii. A supply of erosion control materials (*e.g.*, silt fence and straw bales) is on hand to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.

iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

e. Earthwork. Earthwork, including drilling, blasting, excavation, dredging, filling and compacting, is completed in the following manner:

i. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained from outside of the riparian area or as otherwise approved by NOAA Fisheries.

ii. Material removed during excavation will only be placed in locations where it cannot enter streams or other water bodies.

iii. All exposed or disturbed areas will be stabilized to prevent erosion.

(1) Areas of bare soil within 150 feet of waterways, wetlands or other sensitive areas will be stabilized by native seeding,[4] mulching, and placement of erosion control blankets and mats, if applicable, quickly as reasonable after exposure, but within 7 days of exposure.

(2) All other areas will be stabilized as quickly as reasonable, but within 14 days of exposure.

(3) Seeding outside of the growing season will not be considered adequate for permanent stabilization.

f. Heavy Equipment. Heavy equipment use will be fueled, maintained and stored as follows:

i. Vehicle staging, maintenance, refueling, and fuel storage areas will be a minimum of 150 feet horizontal distance from any stream.

ii. All vehicles operated within 150 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.

iii. When not in use, vehicles will be stored in the vehicle staging area.

g. Site restoration. Site restoration and clean-up, including protection of bare earth by seeding, planting, mulching and fertilizing, will be done in the following manner:

i. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.

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[4] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

ii. No herbicide application will occur as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.

iii. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

iv. Plantings will achieve an 80% survival or 80% cover success after five years.

(1) If success standard has not been achieved after five years, the applicant will submit an alternative plan to NOAA Fisheries. The alternative plan will address temporal loss of function.

(2) Plant establishment monitoring will continue and monitoring reports will be submitted to NOAA Fisheries on an annual basis until site restoration success has been achieved.

3. To implement reasonable and prudent measure #3 (in-water work area activities), the FHWA shall ensure that the in-water work activities (culvert extension and culvert replacements) are isolated from flowing water.

a. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:

i. Before and intermittently during pumping, attempts will be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.

ii. Seining will be conducted by, or under the supervision of a fishery biologist experienced in such efforts. Staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.

iii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever appropriate, to prevent the added stress of an out-of-water transfer.

iv. Seined fish must be released as near as possible to capture sites.

v. The FHWA shall ensure that the transfer of any ESA-listed fish to third parties other than NOAA Fisheries personnel receives prior approval from NOAA Fisheries.

vi. The FHWA shall ensure that any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities will be obtained prior to project seining activity.

vii. The FHWA must allow NOAA Fisheries or its designated representative to accompany field personnel during the seining activity, and allow such representative to inspect the seining records and facilities.

viii. A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fishery biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and

following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality.

b. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as described in the NMFS electrofishing guidelines[5].

4. To implement reasonable and prudent measure #4 (monitoring and reporting), the FHWA shall ensure that:

a. Within 120 days of completing the project, the FHWA shall ensure submittal of a monitoring report to NOAA Fisheries describing the FHWA's success meeting their permit conditions. This report will consist of the following information:

i. Project identification.
   (1) Project name,
   (2) starting and ending dates of work completed for this project,
   (3) the FHWA contact person.

ii. Isolation of in-water work area. All projects involving isolation of in-water work areas must include a report of any seine and release or other fish rescue and salvage activity including:
   (1) The name and address of the supervisory fish biologist,
   (2) methods used to isolate the work area and minimize disturbances to fish species,
   (3) stream conditions prior to and following placement and removal of barriers,
   (4) the means of fish removal,
   (5) the number of fish removed by species,
   (6) the location and condition of all fish released, and
   (7) any incidence of observed injury or mortality.

iii. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

iv. Site restoration. Documentation of the following conditions:
   (1) Finished grade slopes and elevations,
   (2) log and rock structure elevations, orientation, and anchoring, if any,
   (3) planting composition and density, and
   (4) a plan to inspect and, if necessary, replace failed plantings and structures for a period of 5 years, including the compensatory mitigation site.

[5]NMFS (National Marine Fisheries Service), *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

v. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.

vi. Photographic documentation of environmental conditions at the project site before, during and after project completion.

(1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.

(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.

(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. On an annual basis, for 5 years after completing the project, the FHWA shall ensure submittal of a monitoring report to NOAA Fisheries describing the FHWA's success in meeting their fish passage and site restoration goals. This report will consist of the following information:

i. Project identification.

(1) Project name,

(2) starting and ending dates of work completed for this project, and

(3) the FHWA contact person.

ii. Site restoration. Documentation of the following conditions:

(1) Any changes in log and rock structure elevations, orientation, and anchoring.

(2) Any changes in planting composition and density.

(3) A plan to inspect and, if necessary, replace failed plantings and structures, including the compensatory mitigation site.

iii. A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.

iv. Photographic documentation of environmental conditions at the project site after project completion as they relate to fish passage and site restorations goals as described above.

(1) Photographs will include general project location views and close-ups showing details of the project area and habitat features of the channel relocated reaches.

(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.

(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, as they relate fish passage and site restorations goals.

c. Submit monitoring reports to:

NOAA Fisheries
Oregon Habitat Branch, Habitat Conservation Division
Attn: OHB2002-00941
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

d. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the NOAA Fisheries' Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; phone: 360/418-4246. Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem, and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH.
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH.
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activity that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Action

The proposed action is detailed above in section 1.2 of this document. For the purposes of this consultation, the action area is defined as the streambed, streambank and riparian corridor of Newell and Holcomb Creeks extending to the upstream project disturbance limits and downstream one mile below the project disturbance limits. This area has been designated as EFH for various life stages of chinook salmon and coho salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5 of this document, the proposed activities may result in short-term adverse effects to water quality (sediment, chemical contamination, temperature). NOAA Fisheries expects short term adverse effects from increases in turbidity, chemical contamination and temperature within the action area. NOAA Fisheries expects beneficial hydrologic effects from decreased peak flows and no loss of potential infiltration and base flow contribution as a result of the proposed stormwater treatment system. NOAA Fisheries expects beneficial effects from improved fish passage and hydraulic conditions along Holcomb Creek as a result of the proposed culvert replacement.

3.6 Conclusion

The proposed action will adversely affect the EFH for chinook and coho salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA, all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if either action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

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