Final Environmental Assessment

Turner Creek Water Intake System Replacement

City of Yamhill, Oregon
FEMA-1824-DR-OR

August 19, 2010

U.S. Department of Homeland Security
FEMA Region X
130 228th Street SW
Bothell, WA 98021-9796

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FEMA Hazard Mitigation Grant Program (FEMA-1824-DR-OR)

Prepared for:

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FEMA Region X
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LIST OF ACRONYMS

APE	Area of Potential Effect
BA	Biological Assessment
BMPs	Best Management Practices
BO	Biological Opinion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
cy	cubic yards
DEQ	Oregon Department of Environmental Quality
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
FEMA	Federal Emergency Management Agency
FPPA	Farmland Protection Policy
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
HMGP	Hazard Mitigation Grant Program
JFR	Jory clam loam
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
NR	National Register
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
ODFW	Oregon Department of Fish and Wildlife
OEM	Oregon Office of Emergency Management
OHWM	Ordinary High Water Mark
EA	Environmental Assessment
SHPO	State Historic Preservation Office/Officer
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

The City of Yamhill (City) has applied through the Oregon Department of Emergency Management (OEM) to the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) for funding to construct a new water intake structure adjacent to the City's water treatment facility. The site is located downstream of its existing intake structure, which would be decommissioned. FEMA is proposing to fund 75 percent of the cost for this project through its Hazard Mitigation Grant Program (HMGP), with the remainder coming from the City or other nonfederal sources.

1.1 Authority and Jurisdiction

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, provides federal assistance programs for both public and private losses sustained in disasters. FEMA's HMGP provides grants to states, local governments, and Indian tribes for long-term hazard mitigation projects. This project is authorized under a major disaster declared by the President on March 2, 2009, for severe winter storms, record and near record snow, landslides and mudslides that occurred from December 13-26, 2008 (FEMA-1824-DR-OR). The HMGP is authorized under Section 404 of the Stafford Act.

The National Environmental Policy Act (NEPA) of 1969 requires that Federal agencies evaluate the environmental impacts of their proposed actions on the natural and human environment before deciding to fund an action. The President's Council on Environmental Quality (CEQ) has developed a series of regulations for implementing NEPA. These regulations are included in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508. When required, the preparation of an Environmental Assessment (EA) includes an evaluation of alternative means of addressing the purpose and need for a Federal action and a discussion of the potential environmental impacts of the proposed Federal action. An EA provides the evidence and analysis to determine whether the proposed Federal action will have a significant adverse effect on the human environment.

An EA related to a FEMA program must be prepared according to the requirements of the Stafford Act and 44 CFR, Part 10. This section of the Federal Code requires that FEMA takes environmental considerations into account when authorizing funding or approving actions. This final EA was conducted in accordance with the CEQ and FEMA regulations for NEPA.

2.0 PURPOSE AND NEED

The purpose of the HMGP is to reduce the loss of life and property in future disasters by funding mitigation measures during the recovery phase of a natural disaster. The purpose of this project is to provide funds for the removal and decommissioning of the City's existing water intake structure on Turner Creek and to install a new water intake structure closer to the Yamhill water treatment facility. The City has determined there is a need to move the intake structure away

from its current location, which is in an active slide area that causes problems every year when flooding occurs due to sediment and debris slides that affect the intake structure. The City is worried the water intake system could be seriously damaged or destroyed by the next major storm and would leave the citizens in its community without water.

3.0 LOCATION AND BACKGROUND

3.1 Site Location

The City's water treatment plant is located northwest of the City on Turner Creek Road in rural Yamhill County. The plant is approximately 8.2 miles from the Highway 47 turnoff to Pike Road at the north end of the City. Pike Road becomes Turner Creek Road at approximately 4.3 miles. The existing water intake structure is located approximately 100 to 200 yards upstream from the water treatment plant, at approximately river mile 3.8 of Turner Creek. The legal description is Township 2 South, Range 5 West, Section 10; and Latitude 45.412257^{o} North, Longitude -123.295602^{o} West. Figure 1 below shows the location of the project area.

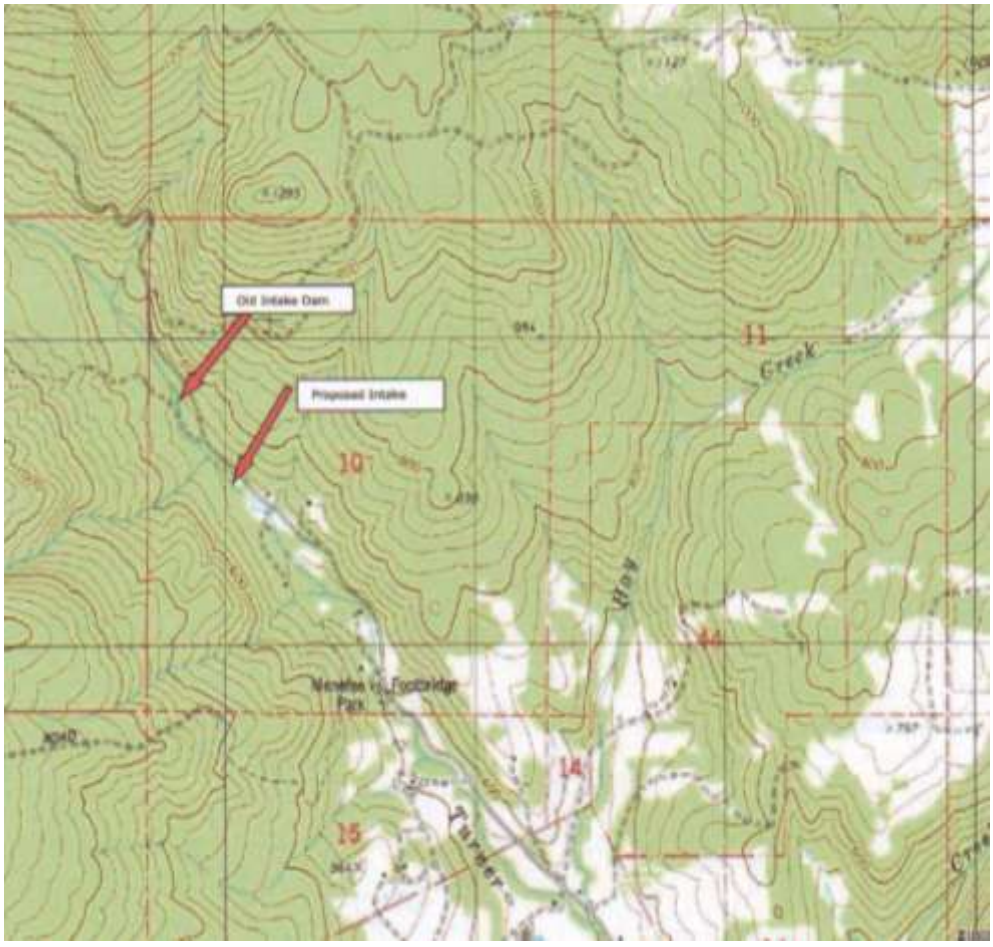

Figure 1. Site Location Map (Wold Environmental Consultants, LLC)

3.2 Background

The existing water intake structure on Turner Creek was constructed in 1936 and is operated by the City. It is the sole source of municipal drinking water for the community of Yamhill. The structure consists of a diversion dam, fish screen, and fish ladder that are situated within a portion of Turner Creek which is an active slide area that poses a threat to the intake structure. The structure is considered outdated and requires significant improvements to provide acceptable fish passage (new fish ladders), along with provisions to protect it from debris flows during high flow periods. In addition, the bank adjacent to the existing water intake pipe has slid into Turner Creek within approximately four feet from the opening of the pipe. Should the intake opening become blocked, the City would lose their only source of water for the community.

The City uses a number of methods for minimizing sediment movement in the watershed, including maintaining a healthy forest with continuous vegetative cover in the riparian area, limitation of operations during wet weather, stabilizing areas with exposed soils, and prohibiting activities near creeks in the area. However, during heavy precipitation sediment movement from upstream and the nearby hillside continues to be problematic. This is largely due to the fine granular nature of the soils in the watershed and the active slide area adjacent to the existing structure.

The construction of a new water intake structure downstream of the existing structure would include the decommissioning of the existing intake structure and would improve fish passage. It would also provide the City with a reliable location to house its intake away from potential slide activity. The proposed project would provide a permanent solution to the continued requirement to have sediment and debris removed that affects the intake structure and eliminate the concern that the adjacent banks will slide and cause additional damage during heavy precipitation events.

4.0 ALTERNATIVE ANALYSIS

In accordance with Federal laws and FEMA regulations, the EA process for a proposed Federal action must include an evaluation of alternatives and a discussion of the potential environmental impacts.

This final EA includes the analysis of two alternatives. Alternative 1 is the No Action Alternative, which would entail no repairs or improvements to the City's current water supply system. Water for the system would continue to be provided by the existing water intake structure at its current location. Alternative 2 is the Proposed Action Alternative and includes new construction of a water intake structure adjacent to the City's water treatment plant and the removal and decommissioning of its current water intake structure upstream of the facility.

A third alternative considered but not carried forward was to repair and update the existing water intake structure at its current location. This would include improvements to the fish ladder to meet current state fish passage requirements, along with bank stabilization upstream of the intake structure where the active slide occurs. Due to the geologic vulnerability of the site, stabilizing the bank would require designing and engineering of a retaining structure that would be able to adequately protect the site.

Even if the slide area was able to be successfully stabilized, debris flow from above the riparian zone both at the site and upstream would continue to pose a threat to the intake structure. The land above the riparian buffer zone was logged within the past five years. Exposed sediment and woody debris on the logged land continue to be vulnerable to washouts during heavy precipitation events. The riparian zone that buffers the water intake structure at and upstream of its current location is steep and limited, as riparian buffer zones for timber harvesting are based on linear distance, not horizontal. Potential damage from debris flows generated from logged areas during future high precipitation events will likely increase at the site during coming years until the replanting efforts at the harvested land is able to provide better soil stability.

No other alternatives were considered for the relocation of the water intake system as the site chosen is on land owned by the City and provides a suitable low impact location in close proximity to the City's existing water treatment facility.

4.1 Alternative 1 – No Action Alternative

Inclusion of a No Action Alternative in the environmental analysis and documentation is required under NEPA. The alternative evaluates the effects of not providing eligible assistance for a specific action and provides a benchmark against which the other alternatives may be evaluated.

Under the No Action Alternative, FEMA would not fund the construction of a new water intake structure downstream of the existing site and the existing structure would continue to provide water for the community. As a consequence, the existing water intake structure would continue to be at risk from future high precipitation events and potential sediment and debris slides.

4.2 Alternative 2 – Relocate Water Intake Structure Adjacent to City's Water Treatment Facility and Decommission Existing Intake Structure (Proposed Action)

The City proposes to construct a new water intake structure downstream of the existing structure at a site adjacent to the City's water treatment facility (see Appendix A). The new location is within a segment of stream channel on land owned by the City. The new intake would be designed as a low impact system, which would allow unimpeded passage for fish at all life stages.

Following the construction of the new intake, the outdated existing structure would be decommissioned during the subsequent calendar year and would entail the removal of the existing 36-foot wide concrete dam, fish screen and fish ladder. All work has been designed to address obstruction and fish passage issues, thereby improving fish habitat. Stream flows would be re-introduced following the removal of the structure and it is anticipated that the stream would naturally attenuate to equilibrium. The Proposed Action does not include the design or construction of a reconstructed channel. The existing structure is considered to be a relatively small dam and the stream is anticipated to revert to a stable morphological condition without additional measures.

For the purposes of this final EA, and in conjunction with the final BA, the proposed project footprint is defined in two segments of Turner Creek, as discussed below.

4.2.1 Area 1 – Proposed Intake

Area 1 is defined as the proposed location for the new water intake structure. It incorporates an area of approximately 2,175 square feet adjacent to the existing water treatment facility. The site is approximately 10 miles northwest of the City on Turner Creek.

The proposed work for the new intake structure consists of excavating an area on the northern bank of Turner Creek. Excavation would require clearing and grubbing of existing vegetation, including the removal of less than 12 alders within the clearing limits of the project area and mobilization of excavation equipment to dig approximately 11 feet deep. The excavation would allow for proper bedding and foundation preparation for the new intake structure. All excavated soil and rock would be hauled off-site to an approved disposal location.

Figure 2. Entrance to new site from treatment plant (4/27/10).

Figure 3. Proposed new intake site (4/27/10).

The staging area would be located on the plant side of an existing cyclone fence in the gravel parking area for the facility and is above and away from the stream. The completed intake would pump water from the top of the constructed basin, which would be located at the stream level and would fill with water from the creek. Should the stream level decrease during dry summer months, the City maintains a raw water impoundment reservoir upstream from the existing intake which could release water to augment the supply during low flows.

Construction sequencing would be directed by the selected contractor and would be required to meet all project conditions. It is anticipated that all in-water work would be completed within one week during approved in-water work windows. Construction would most likely follow the outline below:

- Implement erosion control measures (*e.g.*, containment and sediment control measures).
- Prepare temporary staging area in water treatment plant parking area.

- Construct access road (minimal distance) to construction site.
- Clear and grub the site within established clearing limits.
- Excavate the area above the ordinary high water mark (OHWM) down to bedrock.
- Remove bedrock down to the design depth.
- Install concrete forms and reinforcement for construction of a sediment basin and pump station.
- Isolate the construction area below the OHWM by installing sand bags to divert the stream to the opposite side of the channel to de-water the project site.
- Prior to de-watering the project area, all fish would be salvaged and placed back in the stream immediately downstream of the work area.
- Excavate the area below the OWHM to design depth.
- Install concrete forms and reinforcement for the intake structure.
- Pour concrete.
- Install pumps and related apparatus (railings, fish screens, etc.).
- Remove sand bags to re-establish stream flow and begin a testing operation.
- Conduct site restoration, including grading and replanting of the disturbed area with native vegetation.

All temporary erosion controls would be installed according to the Erosion and Sediment Control Plan (ESCP) developed for the project by the construction contractor and would include methods to prevent pollution. All ESCP measures are required to be in place prior to the commencement of construction. Groundwater de-watering, if necessary, would be directed to a silt sack in the parking lot staging area. This site has an existing forebay for the water treatment plant that would serve as a sedimentation settling facility to ensure turbidity is reduced before water is allowed to re-enter the stream. Fish salvage would be conducted by the Oregon Department of Fish and Wildlife (ODFW) or certified personnel prior to de-watering. The water would be diverted through gravity flow in a flexible pipe system.

4.2.2 Area 2 – Dam Decommissioning

The existing water intake structure is located approximately 100 to 200 yards upstream from the City's water treatment facility. The area affected extends approximately 75 feet upstream of the intake diversion dam and approximately 15 feet below the current intake. An access road and staging area would be constructed on the westerly side of the upstream section of the existing intake dam structure. Decommissioning of the existing structure will occur in the riparian zone (within 25 feet wide), for a total action area of approximately 4,335 square feet.

No downstream effects to Turner Creek are anticipated during construction, as the construction area would be completely isolated from the stream flow. A coffer dam would be installed upstream of the project site to de-water the project area. Fish salvage would be conducted by the ODFW or certified personnel prior to de-watering. The water would be diverted through gravity flow in a flexible pipe system. It is anticipated that all in-water work would be completed in three days.

Figure 2. Existing water intake structure (1) and slide area (2) [4/27/10].

Decommissioning would entail the excavation of approximately 36 cubic yards (cy) of sediment deposits behind the existing concrete diversion dam to expose the dam structure in its entirety. At the recommendation of the National Marine Fisheries Service (NMFS), the excavated material would be stockpiled at the toe of the north bank upstream of the dam structure. This would help to redirect flows from the failing bank and allow the stream to actively recruit bed load material at a tempered pace. Once the structure is fully exposed, dismantling and de-constructing of the concrete dam structure will be completed.

The existing structure is keyed into the stream bank and during deconstruction it will be ascertained whether the bank would be more stable by leaving the end structures intact or if removal of the end sections would be more beneficial. This decision will be made based on input from a geotechnical specialist and project engineer, who will make on site field observations during the dismantling of the structure in order to avoid a potential collapse of the streambank due to removal operations. The intent is to re-establish the full bank to bank cross section of the creek. Additionally, a retaining wall on the northern side of the stream is subject to removal or will remain, depending upon the stability of the bank. This will be ascertained during construction. If it is determined that the retaining wall must be removed, all concrete and reinforcement materials will be extracted and hauled off site to an approved disposal location.

Once the concrete dam structure is removed, a transition channel would be constructed in the center portion of the channel. This temporary measure would create a consistent slope that would provide connectivity to the upstream and downstream portions of the work area. Natural flows would then be re-established and the natural progression of the stream would eventually reach equilibrium as accumulated sediments transport downstream and allow the channel to re-form to a stable state. It is anticipated that after several high flow events the stream will reach equilibrium in slope and sediment transport. As soon as the stream is considered to be stable, restoration work along the riparian edge would commence. Natural fiber matting will be used to provide stability and protect against erosion. Native vegetation would be planted at the site to further stabilize the bank and re-establish the riparian function.

5.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The NEPA compliance process requires Federal agencies to consider direct and indirect impacts to the environment. The following subsections discuss the regulatory settings and the existing conditions for resource areas within the affected area. This section also describes the environment and existing conditions for each alternative and identifies the potential effects of the two alternatives considered.

For each resource category, the impact analysis should follow the same approach in terms of impact findings. When possible, quantitative information is provided to establish impacts. Qualitatively, these impacts will be measured as outlined below:

None/Negligible: The resource area would not be affected, or changes would be either non-detectable or if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor: Changes to the resource would be measurable, although the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate: Changes to the resource would be measurable and have both localized and regional scale impacts. Impacts would be within or below regulatory standards, but historical conditions are being altered on a short-term basis. Mitigation measures would be necessary and the measures would reduce any potential adverse effects.
Major: Changes would be readily measurable and would have substantial consequences on a local and regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

5.1 Geology and Soils

The riparian corridor of Turner Creek consists of areas of steep slopes (1:1), particularly in the immediate vicinity of the existing intake and upstream of the structure, which is an active slide area. Downstream from the existing intake the riparian slope is less severe (3:1) as the channel approaches the area sited for the proposed new intake structure.

Soils in the watershed are currently classified by the Natural Resources Conservation Service's (NRCS) web soil survey mapping as have 85 percent Jory clay loam (JFR), comprised of 34.2 percent sand, 32.3 percent silt and 33.5 percent clay. This classification belongs to hydrologic group B for soils. Group B is designated by the Oregon Department of Environmental Quality as having a moderate rate of infiltration when thoroughly wet and a moderate rate of water transmission. However, specific site conditions, including rock outcrops, slopes and plant cover, are not considered in the hydrologic grouping and are separate factors in predicting runoff.

It was determined by Wold Environmental Consultants during their site analysis for preparing a Biological Assessment for the project that soils above the existing water intake are comprised of

weathered volcanic and sedimentary rock. These soils are more prone to erosion as they are moderately confined, lower in gradient and the stream flows through sedimentary rock layers. Turner Creek meanders with slower water that provides sites for sediment deposition. In the lower elevation main channel of the watershed, rock of volcanic origin is located in the headwater region of the watershed (a small area of the watershed) and tends to contain steep, confined channels that transports water, wood and sediment rapidly.

Dave Johnson has worked as a soil scientist in Yamhill County for the past nine years and currently works out of the NRCS office in Salem. He recently finished mapping for the county but the NRCS website has not been updated with his findings. He is familiar with the general project area, including the canyon area where the existing intake structure is located. He confirmed the JFR soil classification for the area can include weathered volcanic and sedimentary soils, which would be prone to landslides. This includes areas that go back and forth from basalt/volcanic soil to sedimentary.

5.1.1 Affected Environment

At the existing water intake site the stream channel is composed of rock, cobble and fines in a series of riffle pool complexes, with the pools containing sediment to approximately 6 to 16 inches in depth. The site has accumulated sediment and gravel which washes down the stream during high flow events. The bank adjacent to the intake pipe for the municipal system has slid into the creek within approximately one to two feet from the opening. This slide activity is an ongoing problem which requires immediate attention when slides occur to prevent the water intake opening from being blocked, which would eliminate the only municipal source of drinking water for the community of Yamhill.

At the new water intake site there is bedrock (more basalt with harder characteristics) and the stream is relatively small. Bedrock steps, short falls and boulders are present within much of the area and immediately downstream, with downstream areas of riffles and pool complexes. The moderate gradients present throughout the stream channel suggest well-contained flows, large particle substrate, and high stream energy.

5.1.2 Effects and Consequences to Geology and Soils – Alternative 1 – No Action Alternative

Under this alternative, no construction activities would occur that would potentially impact geology or soils. Deterioration of the streambank at the existing intake would continue during future high flow events when combined with landslides in the area.

5.1.3 Effects and Consequences to Geology and Soils – Alternative 2 – Proposed Action

It is the intent of the Proposed Action to provide a permanent solution to the continued requirement to have sediment removed from behind the existing intake structure and eliminate the concern that the adjacent streambank will slide during heavy precipitation events. Approximately 36 cy of sediment would be removed for the decommissioning of the existing dam. In addition, approximately 450 linear feet of the stream channel would be restored back to a typical slope and profile for the naturally occurring stream.

Construction at the new water intake structure site would involve disturbance of the streambank, soils and vegetation. Following construction, all temporary structures would be removed and the site would be re-graded, replanted, and restored. The intake structure would disturb about 2,100 square feet of riparian area and be installed about 11 feet below the existing ground surface. Because of the small scale of the site work at the dam and intake structure, adverse effects to site geology and soils would be minor.

5.1.4 Mitigation Measures

Best Management Practices (BMPs) required in Section 8.0 would ensure adequate measures are applied before, during and after construction to stabilize soils and control stormwater runoff from each action site. A geotechnical specialist and project engineer are required to be on-site during the dismantling of the existing intake structure to determine the extent of the removal that is feasible in order to avoid a potential collapse of the streambank due to removal operations.

5.2 Water Resources

Projects funded by FEMA must comply with permit requirements for the U.S. Army Corps of Engineers (USACE) under the Clean Water Act (CWA) of 1972 and the River and Harbors Act of 1899. This includes any project that involves the excavation or the placement of fill material into waters of the United States, particularly when work will be conducted below the OHWM of a water body or in a wetland. Regulations also require that any fill material used is obtained from a permitted borrow location or approved upland source.

Executive Order (EO) 11988 for Floodplain Management requires Federal agencies to take action to minimize the occupancy and modification of floodplains and to avoid adverse effects and incompatible development in the floodplain. In addition, EO 11990 for the Protection of Wetlands requires Federal agencies to follow avoidance, mitigation, and preservation procedures with public input before implementing construction that has the potential to affect wetlands.

5.2.1 Affected Environment

Turner Creek feeds into the North Yamhill River, which is an approximately 31-mile tributary of the Yamhill River. The action areas are located in the 6th field of the North Yamhill River watershed. The Yamhill River is a sub-tributary of the Willamette River. The Upper Willamette River is separated from the Lower Willamette River by Willamette Falls. The North Yamhill River drains an area of the Northern Oregon Coast Range and is part of the Willamette Valley west of the Willamette River.

The North Yamhill River watershed has elevations that range from 60 feet above sea level where the river leaves the watershed on the eastern side to 3,600 feet above sea level to the west at Trask Mountain. Population density within the watershed is concentrated primarily within the towns of Yamhill and Carlton. A majority of the watershed (100,000 acres) is privately owned and the Bureau of Land Management administers an additional 12,829 acres of primary forestland in the western portion of the watershed.

The effects to water quality are based primarily on the potential for downstream turbidity and sedimentation from in-water construction required for the establishment of a new intake structure, removal of all or a portion of the existing intake during the dam decommissioning activity, and stream restoration work within and along the banks of Turner Creek. The City is currently operating under two permits with the USACE; one for emergency work and an annual Nationwide Permit (NWP) for cleaning and maintenance. The Proposed Action would be authorized under several NWPs, which may include, but are not limited to, NWP 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities) for the removal of the existing water intake structure, NWP 33 (Temporary Construction, Access, and Dewatering) for temporary coffer dams, and NWP 12 (Utility Line Activities) for construction of the new water intake structure. The USACE permit requirements may change depending on the limitations of individual NWPs and whether or not it is decided by the USACE that a more appropriate NWP applies.

The final BA includes additional details regarding the watershed, including existing and potential impacts to riparian conditions, habitat access, habitat elements, channel conditions and water quality. Previous forestry, agriculture and road construction practices have created disturbances that have affected the stream channel by decreasing riparian buffers, increasing sedimentation, and reducing the availability of large woody debris availability, all of which have affected stream morphology, temperatures and habitat availability.

Thorough analysis of the potential affects to water quality related to the Oregon Department of Environmental Quality (DEQ) was conducted in the final BA prepared for the Proposed Action and submitted to NMFS for consultation as part of the USACE permitting process. NMFS has prepared a Biological Opinion (BO) on the effects of the project on biological resources, including water resources. As part of the analysis by NMFS, terms and conditions to minimize effects to these resources are provided in the BO and are required for FEMA funding of this project. The final BA was available for review at the viewing locations in Yamhill County for the draft EA.

Currently, no wetland inventory maps are available for the City. No wetlands have been identified in the immediate vicinity of the project areas that would be affected. A site visit conducted by FEMA Environmental and Historic Preservation staff on both January 28 and April 27, 2010, confirmed that no wetlands would be impacted by the project at the current location or the Proposed Action site. Additional wetlands analysis was conducted by the USACE in their permitting process.

Although, the action areas are not located in a floodplain according to FEMA Floodplain Rate Insurance Map Community Panel No. 4102490025C, dated September 30, 1983, for Yamhill County, historical flood information indicates there is floodplain in the project areas. The water treatment plant is considered a critical facility, including the water intake structure used by the facility. Furthermore, the intake structure's function is dependent on its location adjacent to Turner Creek, in the floodplain. As such, mitigation and design related to floodplains and flood damage risks should be done to the 500-year base flood event, as required for critical facilities.

The Yamhill County Department of Planning and Development has a zoning ordinance for floodplains (Section 901.00 – Floodplain Overlay District) that includes district general standards and provisions for the review of floodplain permits in generalized floodplain areas where specific flood elevation data is not available. The county does not specifically address critical facilities in their ordinance. Factors considered include the importance of the services provided by a proposed facility to the community, the compatibility of the proposed use with existing and anticipated development, and the requirements of a facility for a waterfront location. The City is required to obtain and comply with all provisions in the County's floodplain permitting process. This includes provisions for floodplain development permits to be reviewed to ensure that the proposed development will be reasonably safe from flooding or resistant to flood damage.

The action sites are situated within an area that has relatively steep slope conditions and lack broad floodplain conditions such as a relatively flat valley floor. The straight incision of the channel does not have connectivity to a floodplain, and few to no off-channel ponds or backwater areas are present. Any potential affects to floodplains would be temporary and would not cause any change to pre-existing floodplain values. Neither alternative would have an impact on a 100-year or 500-year floodplain or to wetlands and no further documentation is required.

5.2.2 Effects and Consequences to Water Resources – Alternative 1 – No Action Alternative

This alternative does not include any FEMA action and no construction activities would occur that would potentially impact water resources. Therefore, FEMA would not be required to comply with the CWA, EO 11988, or EO 11990. There would be no additional disturbance of the earth surface from this alternative other than what already exists at the site due to its proximity to an active slide area, which does have the potential to impact water resources. Risks to the intake structure and operation of the water treatment facility, which are critical facilities, would persist.

5.2.3 Effects and Consequences to Water Resources – Alternative 2 – Proposed Action

Site preparation and relocation of the water intake system at an alternative site has the potential to affect water quality by sediment pollution from stormwater runoff that could affect the water quality of Turner Creek. A distance of 700 feet is proposed to address temporary increases in turbidity from in-water work for the Proposed Action. This is based on the type of work, containment proposed, amount of flow within Turner Creek, and the experiences of prior construction projects. While there is potential for nominal amounts of suspended fine sediments to extend beyond 700 feet downstream, it is expected that the concentration of any suspended sediments (turbidity levels) will be low enough to not result in physical effects to water resources. In complying with the county's floodplain ordinance, the Proposed Action would address potential flood damage risks that would be associated with a 500-year base flood event. Consistent with EO11988, relocation of the intake structure would significantly reduce the potential for water treatment facility operation disruptions and be considered a moderate positive effect for the critical facility. The project would cause moderate, but temporary, adverse effects

to water quality, during construction. Restoration of the stream to its natural flow conditions would result in a moderate long-term positive effect.

5.2.3 Mitigation Measures

Terms and conditions to minimize effects to water resources are provided by the BO prepared by NMFS, along with all USACE permitting requirements, and are required for FEMA funding of this project.

In order to minimize stormwater pollutants from the construction activities under the Proposed Action, a General National Pollutant Discharge Elimination System (NPDES) permit, or a waiver of the permit, may be required to be obtained from the DEQ. The General NPDES permit is obtained by developing a Stormwater Pollution Prevention Plan that implements a series of BMPs (*e.g.*, silt fences, hay bales, etc.). The contractor for the Proposed Action is required to implement BMPs (included in Section 8.0) to reduce or eliminate runoff impacts during proposed construction activities and to reduce the potential for soil erosion after construction, regardless of whether a NPDES Permit or a waiver from the permit requirement is secured.

5.3 Biological Resources

The following laws and environmental compliance regulations are required for Federally-funded actions to protect biological resources:

The **Endangered Species Act (ESA) of 1973** directs Federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) and NMFS when an action has the potential to affect any federally-listed threatened, endangered or proposed species, or result in the destruction or adverse modification of designated for proposed critical habitat.

The **Fish and Wildlife Coordination Act (FWCA)** was enacted to protect fish and wildlife when Federal actions result in the control or modification of a natural stream or body of water. The responsibility for compliance with the FWCA for this project falls back to the USACE under their permitting responsibility for Section 404 of the CWA and no additional review is required by FEMA.

The **Magnuson-Stevens Fishery Conservation and Management Act of 1996** (as amended) requires all Federal agencies to protect fisheries habitat from being lost due to disturbance and degradation and to consult with NMFS when an action has the potential to adversely affect EFH.

The **Migratory Bird Treaty Act** requires consultation with the USFWS if an action is determined to cause a potential take of migratory birds and determines measures to minimize or avoid these impacts.

EO 13112 (Invasive Species) was created to prevent the introduction of invasive species and to provide for their control.

In addition to this final EA, a final Biological Assessment (BA) was prepared by Wold Environmental Consultants to address the effects of the proposed construction on fish species that occur in Turner Creek that are listed as threatened under the ESA. The BA also addresses the potential effects of the project on EFH. The BA was required as part of the permit process for the USACE and was submitted to the NMFS for consultation under both the ESA and EFH. The NMFS prepared a Biological Opinion (BO) on the effects of the project on ESA-listed fish, their critical habitat, and EFH on August 16, 2010 (NMFS No. 2010/01984).

5.3.1 Affected Environment

The Proposed Action areas consist of woody riparian vegetation. Tree stands are primarily Douglas fir with some western hemlock, western red cedar, red alder, and bigleaf maple. Common understory shrubs and plants include red osier dogwood, sword fern, salal, Oregon-grape, red huckleberry, reed canary grass, and dense patches of Himalayan blackberry. The areas generally support only sparse understory vegetation because of the high tree density. The majority of the adjacent private forestlands are in the 50-year age class, reflecting the fire history and salvage in the watershed (BLM, 1997).

Willamette Falls historically made the Willamette River downstream of the project passable to migratory fish only during high flow periods. Low summer flows prevented the passage of naturally spawning summer and fall-run salmonids into the Upper Willamette River. As a result, only spring Chinook and winter steelhead trout naturally occur above the falls. Below the falls, the Willamette River provides a migratory corridor for both juvenile and adult anadromous fish and juvenile rearing habitat for several anadromous fish species, including steelhead (*Onchorhynchus mykiss*), and individual runs of coho salmon (*O. kisutch*) and sockeye salmon (*O. nerka*).

The final BA determined the work proposed within Turner Creek for the project has the potential to affect anadromous runs of coho salmon, steelhead trout, coastal/native cutthroat trout (*O. clarki clarki*), and Pacific lamprey (*Lampetra tridentate*). Winter steelhead are native and listed as threatened under the ESA for the Lower Columbia River (Upper Willamette River). Cutthroat trout are proposed as threatened for the Lower Columbia River (Upper Willamette River) under the ESA. Coho salmon are non-native above the Willamette Falls but their population status is growing and the species falls under EFH. The Pacific lamprey does not currently have a Federal listing status.

Factors considered in evaluating the project impacts in the final BA included the dependence of fish species on specific habitat components that will be removed or modified, the abundance of distribution habitat, habitat components in the project vicinity, distribution and population levels of the species (if known), the possibility of direct impacts to fish, the degree of impacts to habitat, and the potential to mitigate the adverse effects. This also includes the proximity of the action to species, timing and duration of the work, and the disturbance frequency, intensity and severity. The approved ODFW in-water work period for the Yamhill River, which includes Turner Creek, is July 15 to September 30. All in-water work associated with the Proposed Action would occur during this period unless an extension of the work period is granted by ODFW and approved by the NMFS.

The final BA incorporates input received from multiple site visits and coordination with the USACE, NMFS, and ODFW. The potential for the project to impact water quality and in-stream and riparian habitat quality was analyzed to determine the environmental baseline for the watershed, and to discuss how the Proposed Action would affect ESA and EFH species. As part of the BO process, NMFS reviewed the project to determine what habitat-based biological requirements will be required to ensure there would not be an adverse effect to ESA and EFH species.

5.3.1.1 Endangered Species Act (ESA)

Winter steelhead, listed as a threatened species on March 19, 1998 (and reaffirmed on January 5, 2006), are known to occur in Turner Creek. ESA winter steelhead juveniles rear in Turner Creek year-round. Adult steelhead may spawn in the area from February to May, with incubating eggs in the gravel possibly until the end of June.

Thorough analysis of the potential effects to winter steelhead was conducted in the final BA. The final BA determination was that the Proposed Action "*may affect, is likely to adversely affect*" ESA-listed fish and "*may affect, but is not likely to destroy or adversely modify*" designated critical habitat under the ESA.

The BO prepared by NMFS includes analysis of the effects of the project on ESA-listed fish and their critical habitat. NMFS concluded in the BO that authorization of the City of Yamhill water intake relocation project is not likely to jeopardize the continued existence of winter steelhead, and is not likely to result in the destruction or adverse modification of critical habitat. As required by section 7 of the ESA, NMFS provided an incidental take statement with the BO. The incidental take statement describes reasonable and prudent measures NMFS considers necessary or appropriate to minimize incidental take associated with this action. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements, that the Federal agency and any person who performs the action must comply with to carry out the reasonable and prudent measures. Incidental take from actions that meet these terms and conditions will be exempt from the ESA's prohibition against the take of listed species. Reasonable and prudent measures, terms and conditions, and reinitiation of consultation requirements included in the BO for compliance with the ESA are included in Appendix D and are required as part of FEMA funding for this project.

The USFWS has also reviewed the Proposed Action with respect to federally listed threatened and endangered species. A field study was completed by Dan Perritt of USFWS on July 28, 2010. The only two federally listed species under the jurisdiction of the USFWS that could be affected by the proposed project is the northern spotted owl (*Strix occidentalis caurina*) and marbled murrelet (*Brachyramphus marmoratus*). Based on the available information provided in the Draft EA and the field survey, the USFWS stated the project will not affect either species. A concurrence letter dated August 5, 2010, is included in Appendix B.

5.3.1.2 Magnuson-Stevens Fishery Conservation and Management Act (as amended); EFH

Coho salmon fall under EFH consideration for Turner Creek. Adults spawn in the area from November until early January, and incubating eggs could be in the gravel until late March,

depending on spawning timing and water temperature. Juveniles may be present in the project areas all year, either as fry in spring, pre-smolts in summer, or as one-year-old smolts in the spring as well.

Thorough analysis of the potential affects to coho salmon was conducted in the final BA for the Proposed Action. The final BA determined the Proposed Action "*may affect, is likely to adversely affect*" EFH. However, based on the timing of the work, the relatively nominal habitat in the vicinity of the project, and the minimal amount of work needed for the Proposed Action, the final BA concluded with a determination that there will be "*minimal to no adverse impact*" to EFH.

The BO prepared by NMFS addresses the effects of the project on EFH-listed fish. Though EFH does not exist for steelhead, the ESA analysis of effect to steelhead habitat from the Proposed Action was determined by NMFS to be relevant to EFH for coho salmon. Conservation measures required for complying with EFH included in the BO (as referenced under the ESA terms and conditions) are included in Appendix E and are required as part of FEMA funding for this project. These measures are necessary to avoid, mitigate, or offset the impact of the proposed action on EFH. In addition, the BO includes one conservation measure that is not a subset of the ESA terms and conditions. The USACE is the lead federal agency regarding EFH and is required to provide a detailed written response to NMFS within 30 days after receiving the EFH recommendations in the BO.

5.3.1.3 Migratory Bird Treaty Act

Yamhill County is located in the statewide Pacific Flyway path for migratory birds. There is not nesting habitat for migratory birds in or near the alternatives and the types of actions proposed would not alter or disturb breeding or non-breeding habitat, affect food fish populations, or contribute to pollution levels or contamination of marine waters, provided all environmental conditions required by FEMA are implemented. No further review regarding migratory birds is required.

5.3.1.4 EO 13112 (Invasive Species)

It is expected that approximately 0.10 acres of riparian vegetation would be affected by the Proposed Action. Only certified noxious weed-free seed, hay, straw, mulch, or other vegetation material would be used for site stabilization. For all replanting, plants and seeds would be obtained from local sources to ensure plants are adapted to the local climate and soil chemistry. Revegetation plans would be prepared in accordance with NMFS guidelines to address factors that contribute to site success such as weather and disturbance patterns, nutrient cycling, and the hydrologic condition of the replanted areas. No pesticide would be allowed and no fertilizer applied. Noxious weed control measures would be implemented during the re-establishment phase in replanted areas. The Proposed Action is in compliance with EO 13112 for invasive species.

5.3.2 Effects and Consequences to Biological Resources – Alternative 1 – No Action Alternative

Under this alternative, no construction activities would occur. The existing water intake structure would continue to be at risk from debris flows during high flow events on Turner Creek and from active slides known to occur in the area. Increased sedimentation and erosion during such events would continue to affect the stream channel and water quality, which in turn has the potential to have adverse effects on fish species and their stream habitat. Wildlife currently inhabiting or foraging in the area would continue to do so.

This alternative does not include any FEMA action; therefore, FEMA would not be required to consult with the USFWS or NMFS to comply with the ESA, FWCA or EFH.

5.3.3 Effects and Consequences to Biological Resources – Alternative 2 – Proposed Action

The final BA determined the Proposed Action may result in short-term adverse effects in the action area and addresses potential adverse effects to both ESA and EFH fish species. The BO prepared by NMFS on the effects of the project on ESA and EFH-listed fish includes terms and conditions to minimize these effects and are required as part of FEMA funding for this project. In addition, Tom Murtough, ODFW District Fish Biologist, has provided criteria to be applied to on-site work that has been incorporated into the mitigation measures required.

Appropriate BMPs would reduce the habitat available for wildlife use, but there is substantial habitat available in the surrounding area and the effect would be negligible.

5.3.3.1 Area 1 – New Intake Effects and Consequences to Biological Resources

Some vegetation loss would result and would include the removal of trees (less than 12 alders) and shrubs for construction of the staging area, access road, temporary work area, and installation of the new intake structure. After removal of the temporary structures used for construction of the new structure, the streambank, soils and vegetation disturbed by the project would be re-graded and restored. Disturbed riparian areas would be seeded with native riparian vegetation.

The final BA for the project determined the Proposed Action may result in short-term adverse effects in the action area and addresses potential adverse effects to both ESA and EFH fish species. The new structure would be located on the northern rim of Turner Creek and placed along the edges of the active stream channel. Construction would result in some permanent removal of riparian vegetation that would nominally change the function of the existing riparian habitat. The placement of a structure where none existed before has the potential to permanently alter the substrate of Turner Creek at this location. The structure has been designed so that it would not pose any physical barrier for fish passage.

5.3.3.1 Area 2 – Dam Decommissioning Effects and Consequences to Biological Resources

Decommissioning the existing intake structure at Area 2 would avoid impacts to riparian areas as much as feasibly practicable. Following decommissioning, the stream channel would be restored back to its typical shape and profile. Riparian vegetation removed for construction would be

replaced by an equal or greater amount, including the re-establishment of the streambank that was disturbed for approximately 75 feet upstream. Trees such as western red cedar, red alder, and big leaf maple would be planted, along with shrubs, herbaceous plants, and aquatic macrophytes to help stabilize the soils.

The decommissioning of the outdated structure would provide unimpeded passage for fish through the removal of a 36-foot wide segment of the intake that currently spans the full width of the stream. The stream channel would be allowed to naturally attenuate and restore itself, which would provide additional fish passage in the stream. Thus, the proposed project would result in moderate long-term positive effects to stream habitat conditions and thus fish.

5.3.4 Mitigation Measures

Mitigation measures required in Section 8.0 would ensure that construction at the Proposed Action sites is not likely to adversely affect the biological resources beyond short-term impacts. This includes a reference to the Conservation Measures required by NMFS, which are included in Appendix D, and mitigation measures provided by ODFW.

5.4 Cultural Resources

The National Historic Preservation Act (NHPA) requires Federally-funded actions to protect cultural resources in and around a project site, in cooperation with the state, tribes and local governments. Section 106 of the NHPA and its implementing regulations (36 CFR 800) outline the procedures to be followed in the documentation, evaluation and mitigation of impacts to cultural resources. The State Historic Preservation Officer (SHPO) is responsible for administering state-level programs. Cultural resources include resources of historical and/or archaeological significance. For purposes of this analysis, the term "archaeological resources" is used to refer to prehistoric or historical subsurface sites or objects, and the term "historic resources" is used to refer to above-ground historic structures and sites.

5.4.1 Affected Environment

The existing water intake structure was built in 1936 and appears typical for that type of structure. The structure would be without National Register eligibility merit. Decommissioning of the existing structure and the construction of an intake structure at a new site would result in ground disturbance. The area disturbed would be relatively small in both locations, thus no field investigations were conducted to further evaluate for the potential presence of archeological resources. The decommissioning site has incurred past ground disturbance from previous landslides and scouring during high flow events. The new site has incurred past ground disturbance in the staging area and up to the cyclone fence separating the water treatment plant facility from Turner Creek.

5.4.2 Effects and Consequences to Cultural Resources – Alternative 1 – No Action Alternative

Under this alternative, no construction activities would occur that would potentially affect cultural resources.

5.4.3 Effects and Consequences to Cultural Resources – Alternative 2 – Proposed Action

As part of the USACE permitting process, the USACE assumed the lead in consulting with the SHPO and tribes that were identified as having a potential interest in the project area. The USACE reviewed files and records, the latest published version of the National Register, lists of properties determined to be eligible, and other appropriate sources of information. The USACE determined the Proposed Action would have no effect to historic properties based upon their review of available information.

The USACE sent a letter to the SHPO requesting concurrence with their determination and received a concurrence letter on May 6, 2010, which is included in Appendix B (SHPO Case No. 10-0444). The SHPO did not find any previous cultural resource surveys completed near the proposed project area. The SHPO advised that extreme caution is recommended during ground disturbing activities to protect potential archaeological sites and objects, and human remains.

A request for review was sent on April 20, 2010, by the USACE to three tribes, including the Confederated Tribes of the Grand Ronde Community (Grand Ronde), the Confederated Tribes of Siletz Indians, and the Confederated Tribes of the Warm Springs Reservation. Eirik Thorsgard, Cultural Protection Coordinator for the Grand Ronde tribe, was the only one to respond. He provided an e-mail on April 26, 2010, stating the tribe had reviewed the USACE permit application and did not have comments or concerns about the project. The correspondence between the USACE and Grand Ronde tribe is attached in Appendix B.

5.4.4 Mitigation Measures

An unexpected discovery clause is included in Section 8.0 and requires that in the event historically or archaeologically significant materials or sites (or evidence thereof) are discovered during the implementation of the project, the project shall be halted and all reasonable measures taken to avoid or minimize harm to property until such time as FEMA, in consultation with the SHPO, determines appropriate measures have been taken to ensure that the project is in compliance with the NHPA.

5.5 Environmental Justice

EO 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations) requires Federal lead agencies to ensure rights established under Title IV of the Civil Rights Act of 1964 when analyzing environmental effects. FEMA and most Federal lead agencies determine impacts to low-income and minority communities as part of the NEPA compliance process. Agencies are required to identify and correct programs, policies, and activities that have a disproportionately high and adverse effect on human health or

environmental effects on minority or low-income populations. EO 12898 also tasks Federal agencies with ensuring that public notifications regarding environmental issues are concise, understandable, and readily accessible.

5.5.1 Affected Environment

For the purpose of evaluating Environmental Justice effects in this final EA, the affected environment is defined as the population of the City of Yamhill, Oregon. Statistics for Yamhill County were also evaluated for comparison. As reported in the 2000 U.S. Census, 92.6 percent of the City is White, 4.8 percent is Hispanic or Latino, and 2.6 percent is not Hispanic, Latino or white. The U.S. Census determined that 25.2 percent of the City was in poverty status in 2000, compared to 40.3 percent for the county.

5.5.2 Effects and Consequences to Environmental Justice – Alternative 1 – No Action Alternative

Under this alternative, no construction activities would take place. The existing water supply source for the community of Yamhill would remain at risk during future high precipitation events and from the potential for landslides to block the water intake. This alternative would have a potential adverse effect on the reliability of drinking water for the community as a whole that would in turn affect low income and minority populations.

5.5.3 Effects and Consequences to Environmental Justice – Alternative 2 – Proposed Action

The construction of a new water intake structure sited downstream of the existing structure would provide the City with a reliable location to house its water intake away from potential slide activity. The proposed project would provide a permanent solution to the continued requirement to have sediment removed from behind the intake structure and eliminate the concern that the adjacent banks will slide during heavy precipitation events. This would have a beneficial effect to the general population, including low income and minority populations in the community of Yamhill, as it would provide a reliable source of water for the municipal drinking water system.

5.5.4 Mitigation Measures

None.

6.0 CUMULATIVE EFFECTS

Cumulative effects are those that result from the incremental effect of an action when added to other past, present and reasonably foreseeable future actions, regardless of what agency (Federal or nonFederal) or person undertakes an action. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

Under the No Action Alternative, adverse impacts would occur if the water system is damaged or destroyed during future flooding or landslide events and the City is left without an available water supply. This would result in an adverse effect to the availability of a reliable source of community water. Relocation of the water intake system as proposed under Alternative 2 should not contribute to adverse cumulative impacts to the environment.

There will be relatively little potential for cumulative effects to the environment from the Proposed Action considered. The relocation would disturb some previously undisturbed ground and there would be temporary disturbance to soil. Areas of disturbed soil would be properly compacted to eliminate settling and erosion issues. BMPs such as silt fencing and revegetation would reduce the potential for runoff and erosion to adjacent areas. There would be long term gain to area residents by the reduction of risk to their existing water intake system and the increase in capacity to the City's water system.

The Proposed Action would establish an improved source of drinking water supply for the citizens of Yamhill and would increase the amount of available water to the City. The section of stream downstream of the existing water intake structure will likely experience an increase in flow as the diversion is eliminated with the decommissioning of the existing water intake structure. It is anticipated that the demand of water supply to the treatment plant would not substantially increase; therefore flows downstream of the new intake structure would be consistent with historical flows in consideration of the raw water diversion.

Indirect effects to stream flow may result should water demand increase beyond the current demand due to increases in the urban population served. However, it is not anticipated that flows would be altered from the diversion pattern that Turner Creek has historically seen from the intake of raw water. The City maintains a reservoir upstream that can be utilized to supplement stream flow during low flows to offset any potential adverse cumulative effects.

7.0 CONSULTATION AND COORDINATION

Several state and Federal agencies were consulted throughout the BA, permit application, and draft EA process to gather valuable input and to meet regulatory requirements. Agencies contacted included the USFWS, NMFS, USACE, ODFW, SHPO, DEQ, and the Oregon Department of State Lands.

7.2 Public Involvement

FEMA's draft EA was released and a public notice was posted in Yamhill for a 21-day public review and comment period, ending July 30, 2010. The draft EA and public notice were posted for viewing on FEMA's website at http://www.fema.gov/plan/ehp/envdocuments/index.shtm. A copy of the public notice and affidavit of publication is included in Appendix C.

The initial public notice will also serve as the final public notice and this EA will serve as the final EA. FEMA does not anticipate the need to prepare an Environmental Impact Statement. In the public notice distributed with the draft EA, all recipients were notified that after the public comment period ends, provided no substantive comments are received, the final EA and a Finding of No Significant Impact (FONSI) will be available at http://www.fema.gov/plan/ehp/envdocuments/archives_index.shtm.

8.0 MITIGATION MEASURES REQUIRED

The following mitigation measures are required as conditions of FEMA funding:

1. The City is required to obtain and comply with all local, state and Federal requirements, including any required certifications and permits. Failure to obtain all appropriate authorizations may jeopardize federal funding.

2. The applicant is responsible for selecting, implementing, monitoring and maintaining appropriate BMPs to control erosion and sediment, reduce spills and pollution, and provide habitat protection. All temporary erosion controls must be installed according to the Erosion and Sediment Control Plan (ESCP) developed for the project by the construction contractor and would include methods to prevent pollution. All ESCP measures are required to be in place prior to the commencement of construction. Access

   roads and work areas must use existing access ways whenever possible and minimize soil disturbance and compaction within 200 feet of any stream, water body, or wetland. A geotechnical specialist and project engineer are required to be on-site during the dismantling of the existing intake structure to determine the extent of the removal that is feasible in order to avoid a potential collapse of the streambank due to removal operations.

3. Reasonable and prudent measures, terms and conditions, and reinitiation of consultation requirements required by the BO prepared by NMFS to minimize effects to water quality and biological resources, along with all USACE permitting requirements, are required for FEMA funding of this project. The standard specifications include, but are not limited to, erosion and sediment control, environmental protection, pollution control measures, regulated work areas, fish protection, work area isolation, water intake screen requirements, and site restoration. Compliance requirements for ESA and EFH are included in Appendix D and E of this document. In order to be covered for incidental take of steelhead, the City of Yamhill is required pursue a habitat conservation plan under section 10 of the ESA with NMFS.

4. The ODFW has stipulated that the Proposed Action adheres to the following: 1) the contractor employs a good Temporary Water Management Plan during instream construction of the new facility and decommissioning of the existing dam upstream; 2) when water is being diverted around the action area(s) that the stream below the diversions do not lose more than 50 percent of flow for any period of time (do not strand fish); 3) all fish are removed (salvaged) from the construction reach, using qualified fish biologists and sampling devices, prior to commencing instream work, and released downstream or upstream of the project area (note that recent preliminary sampling indicates good numbers of juvenile coho and adult cutthroat in the project area – no steelhead were found but may be in vicinity of project); 4) ODFW does not recommend using explosives to remove the dam as a state permit from ODFW will be required and impacts can be unpredictable; 5) the contractor be cognizant of weather and makes sure that erodible surfaces where vegetation has been removed are protected from heavy rain or rising stream flows by using all appropriate BMPs; 6) the inwater work timeframe for Turner Creek is July 15th through September 30th.

5. In order to minimize stormwater pollutants from the construction activities under the Proposed Action, a General NPDES permit, or a waiver of the permit, may be required to be obtained from the DEQ. Permit compliance or documentation of how it was determined a permit is not required is required to be kept in project files.

6. Following decommissioning of the existing water intake structure, the stream channel is required to be restored back to its typical shape and profile. Trees, shrubs, herbaceous plants, and aquatic macrophytes are to be planted to help stabilize the soils. Trees such as western red cedar, red alder, and big leaf maple would be planted where feasible along the riparian areas of the full length of the decommissioning bank, including the re-establishment of the streambank that was disturbed for approximately 75 feet upstream.

7. Only certified noxious weed-free seed, hay, straw, mulch, or other vegetation material would be used for site stabilization and revegetation. After removal of the temporary structures used for construction of the new water intake structure, the streambank, soils and vegetation disturbed at the site are required to be re-graded and restored. Disturbed riparian areas shall be seeded with native riparian vegetation and vegetation removed for construction shall be replaced by an equal or greater amount. For all replanting, plants and seeds will be obtained from local sources to ensure plants are adapted to the local climate and soil chemistry. Revegetation plans will be prepared in accordance with NMFS guidelines to address factors that contribute to site success such as weather and disturbance patterns, nutrient cycling, and the hydrologic condition of the replanting areas. Noxious weed control measures shall be implemented during the re-establishment phase in replanted areas. The use of pesticides and/or fertilizer is not allowed.

8. No construction material or debris shall be staged or disposed of in a wetland, even temporarily. Excess and unsuitable excavated material shall not be sidecast into or placed upslope of wetlands environments and shall be disposed of at an approval disposal location.
9. In the event that historically or archaeologically significant materials or sites (or evidence thereof) are discovered during the implementation of the project, the project shall be halted and all reasonable measures taken to avoid or minimize harm to property until such time as FEMA, in consultation with the SHPO, determines appropriate measures have been taken to ensure that the project is in compliance with the NHPA.

10. Any change to the approved scope of work will require re-evaluation by FEMA for compliance with NEPA and other laws and Executive Orders.

9.0 REFERENCES

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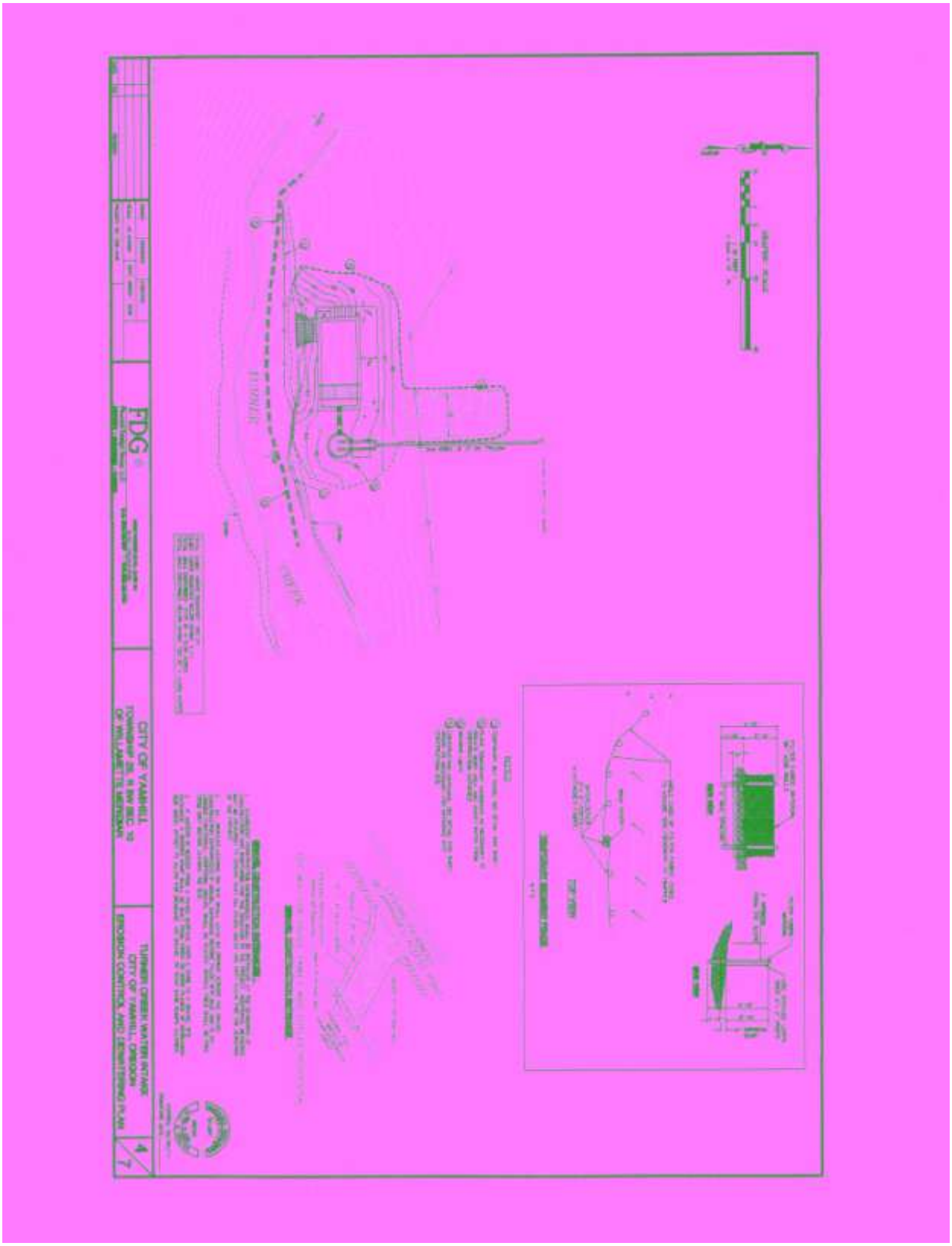
APPENDIX A

Intake Design


FDG
CITY OF YAMHILL
TURNER CREEK WATER INTAKE
CITY OF YAMHILL, OREGON
EROSION CONTROL AND REVEGETATION PLAN
4
7

APPENDIX B

Concurrence Letters

Oregon
Theodore R. Kulongoski, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0671
Fax (503) 986-0793
www.oregonheritage.org

May 06, 2010

Mr. Brian Villalon
US Army Corps of Engineers/CENWP-OP-G
PO Box 2946
Portland, OR 97208-2946

RE: SHPO Case No. 10-0444
NWP-2010-67
Removal existing dam structure
COE/DSL/City of Yamhill
2S 5W 10, Yamhill, Yamhill County

Dear Mr. Villalon:

Our office recently received a request to review the proposal for the project referenced above. In checking our statewide cultural resource database, I find that there have been no previous cultural resource surveys completed near the proposed project area. However, the project area lies within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains.

While not having sufficient knowledge to predict the likelihood of cultural resources being within your project area, extreme caution is recommended during future ground disturbing activities. ORS 358.905 and ORS 97.740 protect archaeological sites and objects and human remains on state public and private lands in Oregon. If any cultural material is discovered during construction activities, all work should cease immediately until a professional archaeologist can assess the discovery. If your project has a federal nexus (i.e., federal funding, permitting, or oversight) please coordinate with your federal agency representative to ensure that you are in compliance with Section 106 of the NHPA.

If you have any questions about my comments or would like additional information, please feel free to contact our office at your convenience. In order to help us track your project accurately, please be sure to reference the SHPO case number above in all correspondence.

Dennis Griffin, Ph.D., RPA
State Archaeologist
(503) 986-0674
dennis.griffin@state.or.us

Villalon, Brian A NWP

From: Eirik Thorsgard [Eirik.Thorsgard@grandronde.org]
Sent: Monday, April 26, 2010 2:46 PM
To: Villalon, Brian A NWP
Subject: RE: NWP-2010-67 City of Yamhill Dam removal

Hello Brian,
The Confederated Tribes of the Grand Ronde Community of Oregon Cultural Resources Department has reviewed this permit application and has no comments or concerns regarding this project at this time.

Eirik Thorsgard MAIS
Cultural Protection Coordinator
Interim Tribal Historic Preservation Officer Confederated Tribes of the Grand Ronde Community of Oregon PhD Candidate Flinders University Adelaide, Australia

-----Original Message-----
From: Villalon, Brian A NWP [mailto:Brian.A.Villalon@usace.army.mil]
Sent: Tuesday, April 20, 2010 9:57 AM
To: Eirik Thorsgard; rkentta@ctsi.nsn.us; Brigette Whipple
Subject: NWP-2010-67 City of Yamhill Dam removal

Good day,

The attached project description, maps, and drawings are provided for your review.

The project is located in Turner Creek approximately 8.2 miles West of the city of Yamhill on Turner Creek Road, in Yamhill County, Oregon (Section 10, Township 2 South, Range 5 West).

The proposed project involves the removal of an existing Dam structure on Turner Creek, used for the city of Yamhill's drinking water intake. The city is proposing to replace the Dam with a side channel intake structure as shown in the attached application and plan drawings.

The Corps believes this project will have No Effect to cultural resources based upon our review of available information. We reviewed Branch files and records, the latest published version(s) of the National Register, lists of properties determined eligible, and other appropriate sources of information in making our determination.

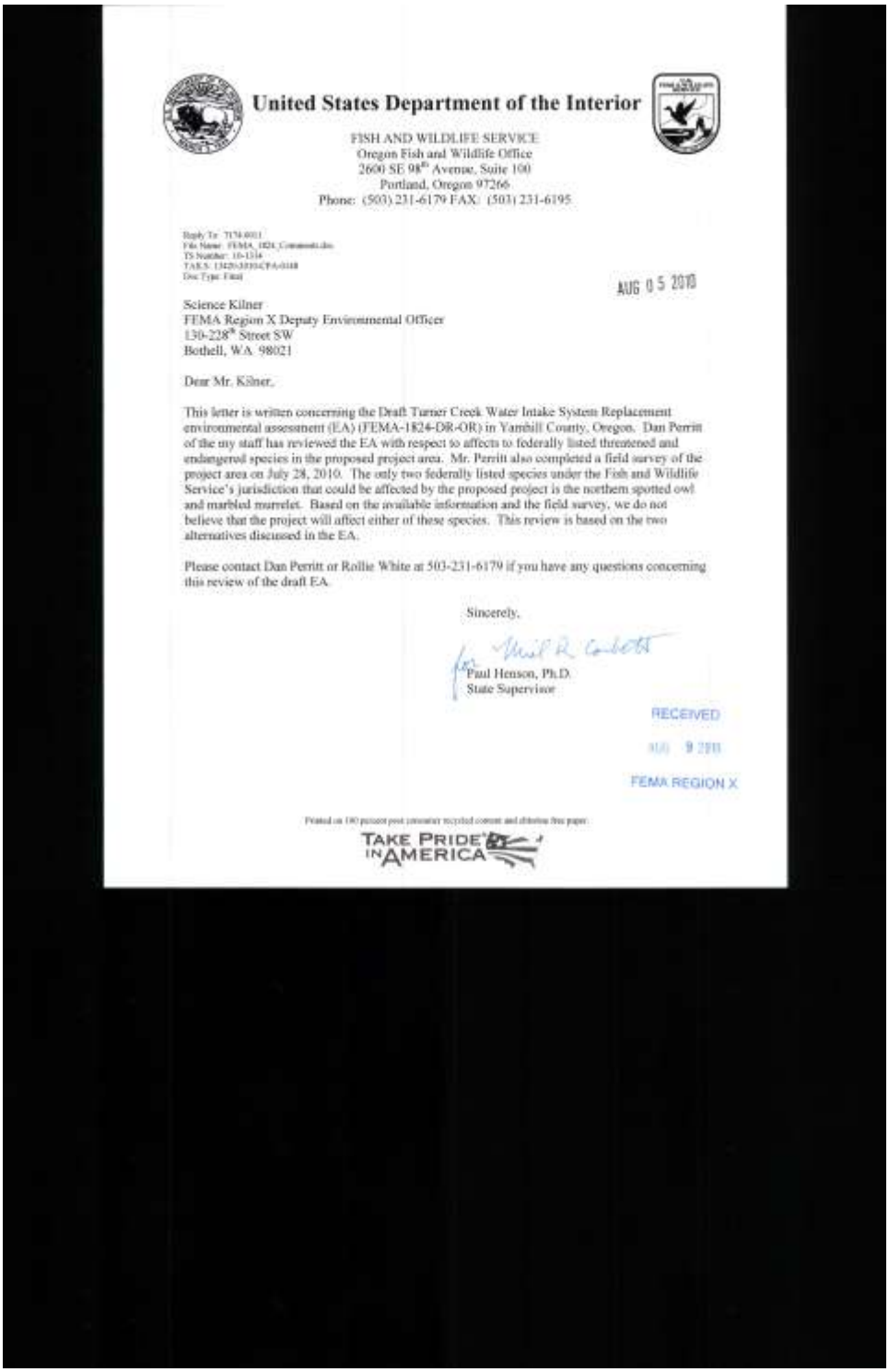
We are also requesting you advise us whether treaty fishing access sites, usual and accustomed areas, traditional cultural properties, or other resources important to the Tribes might be affected by the proposed action.

Please respond to the Corps' effects determination at your earliest convenience. If we have not heard back from you within 30 days from date of this notification, we will assume you have no comments or concerns and/or concur with our effects determination regarding this action.

Regards,

Brian A. Villalon
Regulatory Project Manager/Biologist
US Army Corps of Engineers/ Portland District CENWP-OP-G PO Box 2946 Portland, OR 97208-2946
Office: 503-808-4368
Fax: 503-808-4375

1



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oregon Fish and Wildlife Office
2600 SE 98th Avenue, Suite 100
Portland, Oregon 97266
Phone: (503) 231-6179 FAX: (503) 231-6195

Reply To: 7154-0011
File Name: FEMA_1824_Comments.doc
TS Number: 10-1314
TAILS: 13420-10104CPA-0168
Doc Type: Final

AUG 05 2010

Science Kilner
FEMA Region X Deputy Environmental Officer
130-228th Street SW
Bothell, WA 98021

Dear Mr. Kilner,

This letter is written concerning the Draft Turner Creek Water Intake System Replacement environmental assessment (EA) (FEMA-1824-DR-OR) in Yamhill County, Oregon. Dan Perritt of the my staff has reviewed the EA with respect to affects to federally listed threatened and endangered species in the proposed project area. Mr. Perritt also completed a field survey of the project area on July 28, 2010. The only two federally listed species under the Fish and Wildlife Service's jurisdiction that could be affected by the proposed project is the northern spotted owl and marbled murrelet. Based on the available information and the field survey, we do not believe that the project will affect either of these species. This review is based on the two alternatives discussed in the EA.

Please contact Dan Perritt or Rollie White at 503-231-6179 if you have any questions concerning this review of the draft EA.

Sincerely,

for Paul R. Henson

Paul Henson, Ph.D.
State Supervisor

RECEIVED
AUG 9 2010
FEMA REGION X

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APPENDIX C

Public Notice

The U.S. Department of Homeland Security's
Federal Emergency Management Agency (FEMA)
Draft Environmental Assessment
FEMA-1824-DR-OR
City of Yamhill, Oregon

Turner Creek Water Intake System Relocation

Notice is hereby given that FEMA plans to assist the City of Yamhill by providing partial funding to remove an existing small low head dam and associated water intake system on Turner Creek and to install a new water intake structure closer to the Yamhill Water Treatment facility. The new site would be at less risk from future flooding events and would increase the capacity of the City's water system. FEMA is proposing to fund 75 percent of the cost for this project through its Hazard Mitigation Grant Program (HMGP), with the remainder coming from the applicant or other nonfederal sources. Federal financial assistance would be provided pursuant to the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended.

FEMA has prepared a draft Environmental Assessment (EA) for the proposed project pursuant to the National Environmental Policy Act (NEPA) of 1969 and FEMA's implementing regulations. The draft EA will be finalized after agency and public review and input. The EA evaluates alternatives for compliance with applicable environmental laws, including: Executive Orders No. 11988 (Floodplain Management), No. 11990 (Protection of Wetlands), and No. 12898 (Environmental Justice). Alternative 1 is the No Action Alternative, which would entail no relocation of the existing water intake system. Alternative 2 would decommission the existing water intake system site and build a new water intake system at an alternative site.

This notice will constitute as the final notice as required by Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands. If no significant issues are identified during the comment period, FEMA will finalize the EA, issue a Finding of No Significant Impact (FONSI), and fund the project.

The draft EA is available for viewing and download at http://www.fema.gov/plan/ehp/envdocuments/index.shtm. Please submit your written comments to Science Kilner, FEMA Region X Deputy Environmental Officer, no later than midnight on July 30, 2010. Comments can be submitted by:

1. By mail to: U.S. Department of Homeland Security
   FEMA Region X
   130 228th Street SW
   Bothell, WA 98021-9796
2. Fax at: (425) 487-4613
3. E-mail at: science.kilner@dhs.gov

After the public comment period ends, the final EA and the FONSI will be available for viewing at: http://www.fema.gov/plan/ehp/envdocuments/archives_index.shtm.

"EXHIBIT A"

PUBLIC NOTICE

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA)
Draft Environmental Assessment
FEMA-1824-DR-OR
City of Yamhill, Oregon
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NR Published July 10, 2010

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AFFIDAVIT OF PUBLICATION

STATE OF OREGON } **ss.**
County of Yamhill

I, Connie Crafton, being first duly sworn, depose and say that I am the Legal Clerk, of the NEWS-REGISTER, a newspaper of general circulation as defined by O.R.S. 193.010 and O.R.S. 193.020 published two times each week at McMinnville, County of Yamhill, State of Oregon, and that **City of Yamhill - Public Notice - Turner Creek Water Intake System Relocation** - a printed copy of which is there to annexed and marked Exhibit "A", was Published in the Entire Issue of said issue(s): **July 10, 2010**

Subscribed and sworn before me this **7/12/2010.**

Connie Crafton

Eleanor P. Williams

Notary Public for Oregon
My Commission Expires 08/23/11

OFFICIAL SEAL
ELEANOR P WILLIAMS
NOTARY PUBLIC-OREGON
COMMISSION NO. 420175
MY COMMISSION EXPIRES AUGUST 23, 2011

APPENDIX D

NMFS Endangered Species Act Requirements

The following Reasonable and Prudent Measures, terms and conditions, and reinitiation of consultation requirements are included in the BO prepared by NMFS (No. 2010/01984) for compliance with the Endangered Species Act and are a requirement of FEMA funding:

Reasonable and Prudent Measures

Reasonable and prudent measures are nondiscretionary measures to avoid or minimize take that must be carried out by cooperators for the exemption in section 7(o) (2) to apply. The Corps has the continuing duty to regulate the activities covered in this incidental take statement where discretionary Federal involvement or control over the action has been retained or is authorized by law. The protective coverage of section 7(o) (2) will lapse if the Corps fails to exercise its discretion to require adherence to terms and conditions of the incidental take statement, or to exercise that discretion as necessary to retain the oversight to ensure compliance with these terms and conditions. Similarly, if any applicant fails to act in accordance with the terms and conditions of the incidental take statement, protective coverage will lapse. The NMFS believes that full application of conservation measures included as part of the proposed action, together with use of the reasonable and prudent measures and terms and conditions described below, are necessary and appropriate to minimize the likelihood of incidental take of listed species due to completion of the proposed action.

The Corps shall:

1. Minimize the likelihood of incidental take from construction activities by using best management practices.
2. Minimize incidental take during salvage operations by using best management practices during in-water work.
3. Ensure completion of a monitoring and reporting program to confirm that the Terms and Conditions in this Incidental Take Statement are effective in avoiding and minimizing incidental take from permitted activities.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the Corps and its cooperators, including the applicant, if any, must fully comply with conservation measures described as part of the proposed action and the following terms and conditions that implement the reasonable and prudent measures described above. Partial compliance with these terms and conditions may invalidate this take exemption.

1. To implement reasonable and prudent measure #1 (general construction, riparian disturbance, in-water work, and pollutants), the Corps shall ensure that the applicant will:
   a. Minimize Impact Area. Confine construction impacts to the minimum area necessary to achieve project goals.
   b. In-water Work Period. Complete all work within the wetted channel during ODFW in-water work period of July 1 to September 15 as proposed in the BA. Complete all in-water work as quickly as possible. In-water work occurring outside of this timeframe will require written approval from NMFS.

c. Pre-construction Preparations. Complete the following actions before significant alteration of the project area:

i. Select heavy equipment that will have the least possible adverse effect to the environment, considering factors including, but not limited to, equipment that has the ability to conduct work from existing disturbed areas, exert the least soil compaction impact, and minimize the amount of vibration and noise that could disturb aquatic species.

ii. Before initiating construction activities, provide all staff and contractors with a complete list of conservation measures identified in the BA that are intended to minimize the amount and extent of take resulting from general construction and in-water work.

d. Construction Discharge Water.

i. All discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) must be treated using the best available technology applicable to site conditions to remove debris, nutrients, sediment, petroleum products, metals and other pollutants likely to be present.

ii. Do not allow pollutants such as green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any waterbody, wetland, or stream channel below ordinary high water.

e. Stage Vehicles and Materials. Store construction materials, and fuel, operate, maintain, and store vehicles as follows:

i. To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on site.

ii. Before operations begin and as often as necessary during operations, steam clean all equipment that will be used below OHW until all visible external oil, grease, mud, and other visible contaminants are removed. Complete all cleaning and re-fueling in the staging area at least 150 feet from any stream, water body, or wetland.

f. Pollution Control Plan. A pollution control plan will be prepared and carried out, commensurate with the scope of the project, that includes (i) the name, phone number, and address of the person responsible for accomplishing the plan; (ii) BMPs to confine, remove, and dispose of construction waste, including every type of debris, discharge water, concrete, petroleum product, or other hazardous materials generated, used, or stored on-site; (iii) procedures to contain and control a spill of any hazardous material generated, used or stored onsite, including notification of proper authorities; and (iv) steps to cease work under high flow conditions, except for efforts to avoid or minimize resource damage.

2. To implement reasonable and prudent measure #2 (work area isolation and salvage operations) the Corps shall ensure the following:

a. Fish Salvage. Before, and intermittently during, in-water work, fish trapped in the isolation area must be captured using a hand-net, seine, or other methods as are prudent to minimize risk of injury, then released at a safe release site under the supervision of a qualified fishery biologist.

i. Follow NMFS guidelines for electrofishing waters containing salmonids listed under the Endangered Species Act (NMFS 2000).

ii. Handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining or hand-netting and transfer procedures to prevent the added stress of out-of-water handling.

iii. Ensure water quality conditions are adequate in buckets or tanks used to transport fish by providing circulation of clean, cold water, using aerators to provide dissolved oxygen, and minimizing holding times.

- Release fish at a safe site as quickly as possible, as near as possible to capture site.
- Do not transfer ESA-listed fish to anyone except NMFS personnel, unless otherwise approved in writing by NMFS.

b. Isolation of In-water Work Area. The work area shall be well isolated from the active flowing stream using inflatable bags, sandbags, or similar materials.

c. Maintain the existing flow downstream from the action area throughout the construction. 3. To implement reasonable and prudent measure #3 (monitoring), the Corps shall ensure that:

a. Salvage Notice. A permit condition requires posting the following notice at the work site: NOTICE: If a sick, injured, or dead specimen of a threatened or endangered species is found in the project area, the finder must notify NMFS through the contact person identified in the transmittal letter for this Opinion, or through the NMFS Office of Law Enforcement at 1-800-853-1964, and follow any instructions. If the proposed action may worsen the fish's condition before NMFS can be contacted, the finder should attempt to move the fish to a suitable location near the capture site while keeping the fish in the water and reducing its stress as much as possible. Do not disturb the fish after it has been moved. If the fish is dead, or dies while being captured or moved, report the following information:

(1) The NMFS consultation number;

(2) the date, time, and location of discovery;

(3) a brief description of circumstances and any information that may show the cause of death; and (4) photographs of the fish and where it was found. The NMFS also suggests that the finder coordinate with local biologists to recover any tags or other relevant research information. If the specimen is not needed by local biologists for tag recovery or by NMFS for analysis, the specimen should be returned to the water in which it was found, or otherwise discarded.

b. Monitoring Report Required. The Corps must ensure that the permittee submits an implementation monitoring report to NMFS, at the address below, by December 31, of the year the project is implemented. The monitoring report will describe the permittee's success at not exceeding the amount and extents of take authorized in this incidental take statement, as described below.

c. Monitoring Report Contents. The monitoring report will include the following information:

i. Project identification.

(1) Permittee name, permit number and project name.

(2) Project location, by sixth field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.

(3) Corps contact person.

(4) Starting and ending dates for work completed.

ii. Project data.

(1) Restoration. Describe restoration activities and provide details about the new intake screen.

(2) Isolation area. The area of instream habitat isolated by cofferdams.

(3) Turbidity. Report the results of turbidity monitoring.

(4) Fish salvage report. The number of coho salmon salvaged and released, as well as the number of individuals killed.

d. Monitoring Report Deadline. The Corps must ensure the applicant provides the specified monitoring information by December 31, the year of project implementation.

e. Reinitiation Contact. To reinitiate consultation, contact the Oregon State Habitat Office of NMFS, at the address above.

Reinitiation of Consultation

Reinitiation of formal consultation is required and shall be requested by the Federal agency or by NMFS where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently modified in a manner that has an effect to the listed species or designated critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat is designated that may be affected by the identified action (50 CFR 402.16).

The reinitiation provisions of this Opinion will be triggered if greater than 910 square feet of channel is isolated and dewatered during construction of the new water intake, greater than 12,340 square feet of channel is isolated and dewatered during decommissioning of the existing water intake, a turbidity plume resulting from construction extends more than 500 feet downstream from the construction sites, more than 50 fish are captured or more than 3 killed.

To reinitiate consultation, contact the Oregon State Habitat Office of NMFS, and refer to the NMFS Number assigned to this consultation (2010/01984).

APPENDIX E

NMFS Essential Fish Habitat Requirements

The following Conservation Recommendations for Essential Fish Habitat (EFH) are included in the BO prepared by NMFS (No. 2010/01984) and are required by FEMA funding to avoid, mitigate, or offset the impact of the proposed action on EFH:

1. General Construction. Follow terms and conditions 1a through 1e as presented for ESA compliance in Appendix D of this document.
2. Fish Salvage. Follow terms and conditions 2a through 2c as presented as presented for ESA compliance in Appendix D of this document.
3. Monitoring and Reporting. Follow terms and conditions 3a through 3e as presented for ESA compliance in Appendix D of this document.