RECLAMATION

Managing Water in the West

Finding of No Significant Impact
Final Environmental Assessment

Entiat River Offstream Water Wells Implementation

Chelan County, Washington

U.S. Department of the Interior
Bureau of Reclamation
Middle Snake Field Office
Pacific Northwest Region
Boise, Idaho

September 2010

U.S. Department of the Interior

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Mission of the Bureau of Reclamation

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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PN FONSI 10-11

Introduction

The Bureau of Reclamation (Reclamation) prepared this Finding of No Significant Impact (FONSI) to comply with the Council on Environmental Quality's (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA). This document briefly describes the Proposed Action, the alternatives considered, the scoping process, Reclamation's consultation and coordination activities, and Reclamation's finding. The Final Environmental Assessment (EA) fully documents the analyses.

Reclamation will provide technical assistance to the Cascadia Conservation District (CCD) to replace a surface water irrigation diversion with a groundwater well site located on the private property of Jim Gollaher. Funding for this surface water diversion to groundwater well project is provided by the America Recovery Reinvestment Act (ARRA) and these actions would support Reclamation's commitments under the 2008 Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp). The wells would be drilled on sites prepared by the CCD, located approximately 5 to 6 miles north of Entiat, Washington. The fish entrainment issues associated with diversion and screens along the river will be eliminated by moving the points of diversion from the river.

Location and Background

The project is located in Chelan County, Washington, which is north of the town of Entiat. The Entiat River subbasin is located entirely in Chelan County, Washington. The Entiat River flows approximately 53 miles from its headwaters to where it enters into the Columbia River at river mile (RM) 482.7. The Gaines Ditch, located in the lower Entiat River valley, has been in existence as an irrigation ditch since the 1930s. Gaines Ditch is used by irrigators to divert water from the Entiat River to the irrigated properties.

As part of the Columbia River Basin, the Entiat River contains the Upper Columbia River spring Chinook salmon (*Oncorhynchus tshawysha*), Upper Columbia River steelhead (*Oncorhynchus mykiss*), and Columbia River bull trout (*Salvelinus confluentus*), which are included in the Threatened and Endangered list under the Endangered Species Act (ESA) (UCSRB 2006).

Watershed limiting factors defined as "conditions that limit the ability of habitat to fully sustain populations of salmon" identified for the Entiat River subbasin are lack of overwintering juvenile rearing habitat, loss of access to spawning and rearing habitat, loss of floodplain function, lack of large woody debris, accumulation of fine sediment in spawning gravel, elevated water temperature, and water quality (Andonaegui 1999; UCSRB 2006)

Purpose and Need

The purpose of the Proposed Action is to provide a safe and reliable source of domestic water for the landowner, while reducing impacts to the fisheries within the Entiat River subbasin. The need for the project is to eliminate the fish entrainment issues associated with diversions and screens along the river. This action would support Reclamation's commitments under the 2008 FCRPS BiOp.

Alternatives Considered

The EA addressed two alternatives: Alternative A – No Action and Alternative B – Proposed Action. A No Action alternative is included for comparative analysis purposes.

Alternative A – No Action

Under the No Action alternative, Reclamation will not drill the replacement groundwater wells and the landowner will continue reliance on existing diversions for water supply resulting in continued entrainment and impingement issues for fish species.

Alternative B – Proposed Action

Under Alternative B, the landowner would convert from surface water diverted from the Entiat River using the Gaines Ditch to four groundwater wells. This would result in the elimination of 1.93 cfs being diverted from the Entiat River. Contractors would drill groundwater wells, approximately 40 to 60 feet deep, through the existing lower valley alluvium composed of primarily sand, gravel and cobbles with silt and clay, into the existing subsurface aquifer. This groundwater supply source would provide additional capacity and operational flexibility for the landowner and would help maintain or benefit the existing fisheries.

The well site is located on privately-owned land outside of municipal boundaries Chelan County. The site has been previously disturbed by development of the existing ditch, irrigation practices, and residential development activities. The well site is within an unincorporated area of the County with no land use zoning requirements.

Water produced by the proposed wells would be pumped into the existing irrigation and onto the landowner property.

The wells would be placed on an excavated well pads prepared by the CCD. All drilling fluids and pumped test waters would be contained on the site. No water or drilling fluids would be allowed to flow into nearby natural drainages. A Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented by the drilling contractor, if necessary. Any temporary retention structures would be built on previously disturbed land. Four 12-inch-diameter wells would be installed on the Gollaher property.

Environmental Consequences

The Final EA discusses the affected environment and analyzes the potential environmental impacts of implementing the Proposed Action. The resources analyzed include water resources, threatened and endangered species, vegetation and wildlife, noxious weeds, soil erosion, cultural resources, Indian trust assets, and socioeconomics.

Water Resources

No adverse impacts are expected as a result of Alternative B. There could potentially be some benefit to surface water resources.

The location of the wells and well piping, including the limited removal of native riparian vegetation as part of the project is not expected to have a measurable effect on water temperature, sediment, or turbidity and the project will neither introduce nor remove any potential chemical or nutrient components from the watershed, thereby maintaining these indicators in the Entiat River watershed.

Using groundwater wells in the vicinity of the proposed location would increase fisheries survival by increasing water left in the main stem Entiat River. Water resources and the drainage would not be adversely impacted; however, depending on the location of the wells some indirect impacts from construction may temporarily increase sedimentation and turbidity, but will likely not increase to such a levels that it may cause injury to fish that may be present within the action area. Some ground-disturbing construction activities could potentially temporarily degrade aquatic habitat through erosion and subsequent sediment transport and delivery to streams which could resort in the short-term reduction in the quality and quantity of spawning and rearing habitat (Meehan 1991).

Threatened and Endangered Species

The Proposed Action is not likely to adversely affect steelhead and spring Chinook based on the potential for these species to occur in the project action area during project construction and the analysis of potential direct, indirect, and cumulative effects as well as the possible beneficial effect of this project on these species.

In 1997, the Washington Department of Fish and Wildlife (WDFW) Yakima Screen Shop completed a ground survey inventory of irrigation structures in the Entiat River watershed. The inventory identified two of the six surface water diversions and eight of the 45 pump diversions did not meet WDFW criteria for properly screened diversions (for the protection of juvenile fish). It was determined from these analyses that potential short-term impacts to these salmonid species will be negligible and the long-term benefits of the project will improve conditions and likely result in increased production for ESA-listed species. Additionally, the project will not result in the destruction or adverse modification of designated critical habitat (USFS 2007).

The project is not likely to adversely affect bull trout based on the potential for this species to occur in the project action area during project construction and the analysis of potential direct, indirect, and cumulative effects.

The project would have no effect to bald eagles, northern spotted owls, Canada lynx, grizzly bears, gray wolves, showy stickseed (*Hackelia venusta*), Wenatchee mountains checker-mallow (*Sidalcea oregano var. calva*), and Ute ladies-tresses (*Spiranthes diluvialis*), which may be present within Chelan County (USFS 2007). These species have not been documented in the project action areas and are not expected to occur based on a lack of appropriate habitat conditions.

In accordance with the Essential Fish Habitat (EFH) requirements of the Magnuson-Stevens Act, it has been determined that the project would have no adverse effect to EFH for Pacific salmon species. The project would improve habitat conditions within the lower Entiat River watershed and is not expected to measurably affect this indicator, thereby maintaining this indicator.

Vegetation and Wildlife

Impacts to vegetation resulting from implementation of the Proposed Action would be kept to a minimum. Vegetation cover would be left undisturbed whenever possible and disturbed areas would be reseeded with native species.

The temporal loss of riparian vegetation is expected to have a negligible impact to the aquatic environment. The vegetation to be removed does not afford shade to the river, although it does provide allochthanous organic input, streambank stability, and some overhead cover along the left streambank margins.

Temporary displacement of wildlife species from increased human presence and noise from the construction activities would occur in the immediate area. Wildlife would temporarily leave the area but should return in a short period. No significant impact to vegetation or wildlife is expected.

Noxious Weeds

Implementation of the Proposed Action could result in land disturbance, depending upon how much space is ultimately needed for construction and staging activities at each location. To minimize the potential for the continued establishment and spread of State-listed and other noxious weeds, a revegetation plan would be implemented. In addition to reseeding areas disturbed during construction, the introduction of noxious weed seeds would be minimized by a requirement that all equipment used on the project be pressure-washed before arriving and leaving the site. As such, the potential for noxious weeds becoming established in the project area over time would be minimal.

Soil Erosion

Implementation of the Proposed Action could result in the removal of vegetation and disturbance of soil during construction could result in localized soil erosion at the project area. Sedimentation and erosion associated with construction of the project could potentially affect fish and fish habitat. Ground-disturbing construction activities could potentially degrade aquatic habitat through erosion and subsequent sediment transport and delivery to streams. Spawning activity by late-run Chinook salmon (not listed under ESA) and steelhead has been documented within the project action areas; however, the proposed project would not introduce any significant quantities of fine sediments to the system that may affect spawning areas, further increase substrate embeddedness, or degrade existing channel conditions.

Standard construction best management practices (BMPs) would be implemented to minimize sediment inputs to the river during construction, as well minimize potential increases in turbidity associated with in-water activities. Consequently, most runoff would be contained within the active construction site. Vegetation cover would be left undisturbed whenever possible and disturbed areas would be reseeded with native species.

Cultural Resources

There are no known structures or sites eligible for the National Register of Historic Places (NRHP) that would be affected by the Proposed Action. In addition, no sacred sites or traditional cultural properties are known to exist in the project area. If cultural or archaeological resources are encountered during site construction or drilling activities, work would cease and the Reclamation Area Archaeologist would be notified immediately. If consultation with Tribes results in the identification of any such sites or properties, Reclamation will consult with the concerned Tribes to ensure no adverse effects result from the Proposed Action.

Indian Trust Assets

Under the Proposed Action alternative, there would be no impacts on Indian Trust Assets (ITAs) since no known ITAs have been identified in the project area.

Socioeconomics

Implementation of the Proposed Action may result in the creation of a small number of jobs for contractors during site construction and drilling activities. Construction and drilling activities are anticipated to take several months to complete and could employ several individuals during that time period. Assuming materials would be purchased locally and workers would be employed from the Chelan County area, the Proposed Action would result in minor beneficial effects on the local economy.

Environmental Justice

No adverse natural resource or socioeconomic impacts adversely affecting minority and low-income populations have been identified; therefore, there would be no impacts to environmental justice as a result of the Proposed Action.

Cumulative Impacts

Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Cumulative effects were not analyzed in this EA because the habitat restoration projects being conducted in this watershed are covered in the Bonneville Power Administration's (BPA) *Fish and Wildlife Implementation Plan Environmental Impact Statement* (EIS) of April 2003 (BPA 2003). The programmatic EIS considers both the broad-based actions (e.g., policy and programs) and the site specific actions for habitat restoration. All reasonably foreseeable future habitat projects conducted in the watershed will be conducted under procedures outlined in the BPA EIS.

Consultation and Coordination

Endangered Species Act Section 7(a)(2)

The Endangered Species Act (ESA) requires all Federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat. A list of species that may be present in Chelan County, Washington and are listed under the ESA was obtained from the USFWS web site (Appendix B of the Final EA). However, since none of the listed species occurs in the specific project area, consultation was not initiated.

National Historic Preservation Act Consultation

Though Reclamation assumed the lead agency responsibility for cultural resource compliance, CCD completed the National Historic Preservation Act (NHPA) Section 106 process on Reclamation's behalf. Cultural resource surveys were conducted, reviewed, and used to determine the impacts to historic properties, if they are present, and to follow NEPA and Section 106 NHPA as required by law.

The project is located on the USGS 7.5' Ardenvoir, Washington topographic quadrangle. The Area of Potential Effect (APE) is limited to the construction footprints of the property's buried irrigation pipelines and wells. There are no structures or sites eligible for the National Register of Historic Places (NRHP) that would be affected as a result of the proposed project. No historic properties of any time period or type were identified within the APEs.

Tribal Coordination and Consultation

A scoping letter was sent to the Confederated Tribes of the Colville Reservation, and Confederated Tribes of Warm Springs and Yakama Indian Nation to involve and address any questions or concerns related to the Proposed Action. The letter also requested that the tribe inform Reclamation of any Indian Sacred Sites located on or in the vicinity of the project area. No indication was received from the tribe regarding the existence of sacred sites or if they had comments or concerns on the proposed action. Therefore, no further consultation is warranted.

Finding

Based on the analysis presented in the Final EA, Reclamation's assessment of threatened and endangered species, cultural resources, and other resource issues, and agency comment on the Draft EA, Reclamation finds that there would be no significant impacts associated with the

Proposed Action. Reclamation makes this Finding of No Significant Impact (FONSI) pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.) and the Council on Environmental Quality implementing regulations (40 CFR 1500). Reclamation has determined that the Proposed Action does not constitute a major Federal action that would significantly affect the human environment. Therefore, no environmental impact statement will be prepared for this proposal.

Recommended:

9/30/10

Gretchen Fitzgerald
Natural Resource Specialist

Date

Approved:

30 September 2010

Karl E. Wirkus
Regional Director
Pacific Northwest Region

Date

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
ARRA	America Recovery and Reinvestment Act
BiOp	Biological Opinion
BMPs	Best Management Practices
BPA	Bonneville Power Administration
CCD	Cascadia Conservation District
CFR	Code of Federal Regulations
CWA	Clean Water Act
DOE	Department of Ecology
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
EWPU	Entiat Watershed Planning Unit (or Implementation Plan)
FCRPS	Federal Columbia River Power System
ITAs	Indian Trust Assets
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act of 1996
NEPA	National Environmental Policy Act
NOAA Fisheries Service	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OHWL	Ordinary High Water Line
PUD	Public Utilities District
Reclamation	U.S. Bureau of Reclamation
RM	river mile
SHPO	State Historic Preservation Office

SWPPP	Stormwater Pollution Prevention Plan
TCPs	Traditional Cultural Properties
T&E	Threatened and Endangered
THPO	Tribal Historic Preservation Office
UCSRB	Upper Columbia Salmon Recovery Board
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WDOE	Washington Department of Ecology
WRC	Washington Rivers Conservancy
WRIA	Water Resource Inventory Area
WRC	Washington Rivers Conservancy

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Chapter 1 PURPOSE AND NEED

1.1 Introduction

The lower 12 miles of the Entiat River main stem is the focus of several projects that Washington Rivers Conservancy (WRC), Chelan Public Utilities District (PUD), and Cascadia Conservation District (CCD) are collaborating on with other agencies. The identification, prioritization, and coordination of the Entiat Wells Project have been accomplished within the framework of the 2004 Entiat Water Resource Inventory Area (WRIA) Management Plan (Implementation Plan) as administered by the Entiat Watershed Planning Unit (EWPU). The groundwater wells projects are divided into two separate projects: Washington State Department of Ecology (DOE) funded projects and the ARRA (America Recovery and Reinvestment Act) projects.

For this project, CCD and the EWPU are working with previously identified landowners to eliminate points of diversions along this stretch of the Entiat River by switching to groundwater wells as their primary source of water. These changes will significantly decrease water withdrawn directly from the river, improve conveyance efficiency, eliminate instream maintenance of diversions, and provide an improved and undisturbed habitat in the Entiat River main stem. Entiat River offstream well implementation will allow irrigators to pump from wells and eliminate the fish entrainment issues associated with diversion and screens along the river. The Entiat River is a tributary to the Columbia River and contains endangered anadromous fish. With this project, the U.S. Bureau of Reclamation (Reclamation) can complete a portion of the actions required by the 2008 Federal Columbia River Power System (FCRPS) Biological Opinion (BiOp). The project would include ARRA funding, placement, drilling, and installation of the irrigation wells.

The project would benefit listed salmon and steelhead species, by eliminating entrainment associated with the diversions and screens. Several agencies are involved in cooperative efforts to improve or identify specific diversions to better protect anadromous fish.

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) and analyzes the potential environmental impacts of drilling and installing the irrigation wells.

1.2 Location and Background

The project is located Chelan County Washington, north of the town of Entiat. The Gaines Ditch, located in the lower Entiat River valley, has been in existence as an irrigation ditch since the 1930s. The ditch is used by irrigators to convey divert water from the Entiat River to the irrigated property. On December 22, 2009, the CCD arranged a site visit to meet with the private landowners/irrigators in preparation for landowner agreements and to conduct a field review of possible locations for construction of the irrigation wells. The CCD reviewed two prospective landowner sites: Mr. Jim Gollaher and Mr. Randy Whitehall, both of whom were candidates for this project under the ARRA. Due to delays in acquiring easement access on the Whitehall property, this EA will only cover the Gollaher site.

1.3 Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to provide a safe and reliable source of domestic water for the landowner while reducing impacts to the fisheries within the Entiat River subbasin. The need for the project is to eliminate the fish entrainment issues associated with diversions and screens long the river. This action would support commitments under the 2008 FCRPS BiOp.

1.4 Authority

On October 20, 2007, the Assistant Deputy Secretary signed a memorandum redelegating authority to the Pacific Northwest Regional Director under the Fish and Wildlife Coordination Act (16 U.S.C. §§ 661 — 666c); Section 5 of the Endangered Species Act (16 U.S.C. § 1534); and section 7(a) of the Fish and Wildlife Act of 1956 (16 U.S.C. § 742f(a)) that is required to perform off-site habitat improvements when required to comply with subsection 7(a)(2) of the Endangered Species Act (16 U.S.C. § 1536(a)(2)) regarding the construction and/or continued operation and maintenance of any Federal Reclamation project located in Reclamation's Pacific Northwest Region. This authority is to be used for the funding of projects in the Entiat River subbasin. The funding for these projects has been obtained under AARA and includes working with project sponsors and other agencies and entities in the river basins.

1.5 Regulatory Compliance

Various laws, Executive Orders, and Secretarial Orders apply to the Proposed Action and are summarized below. The legal and regulatory environment within which the Federal activity would be conducted depends on which alternative is implemented.

1.5.1 National Environmental Policy Act

NEPA requires that the action agency use a public disclosure process to determine whether or not there are any environmental impacts associated with proposed Federal actions. If there are no significant environmental impacts, a Finding of No Significant Impacts (FONSI) can be signed to complete the NEPA compliance.

1.5.2 Endangered Species Act

The Endangered Species Act (ESA) requires all Federal agencies ensure that their actions do not jeopardize the continued existence of listed species, destroy, or adversely modify their critical habitat. As part of the ESA's Section 7 process, an agency must request information from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries Service) on whether any threatened and endangered species occur within or near the action area. The agency then must evaluate impacts to those species. If the action may affect any listed species, the agency must consult with the USFWS or NOAA Fisheries Service.

1.5.3 Clean Water Act

The Clean Water Act (CWA) provides for protection of water quality including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters.

1.5.4 National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended, requires that Federal agencies consider the effects that their projects have on properties eligible for or on the National Register of Historic Places. The 36 CFR 800 regulations provide procedures that Federal agencies must follow to comply with the NHPA. For any undertaking, Federal agencies must determine if there are properties of National Register quality in the project area, the effects of the project on those properties, and the appropriate mitigation for adverse effects. In making these determinations, Federal agencies are required to consult with the State Historic Preservation Office (SHPO), Native American tribes with a traditional or culturally-significant religious interest in the study area, the interested public, and in certain cases, the Advisory Council on Historic Preservation (ACHP).

1.5.5 Executive Order 13007: Indian Sacred Sites

Executive Order 13007, dated May 24, 1996, instructs Federal agencies to promote accommodation of access to and protect the physical integrity of American Indian sacred

sites. A "sacred site" is a specific, discrete, and narrowly delineated location on Federal land. An Indian tribe or an Indian individual determined to be an appropriately authoritative representative of an Indian religion must identify a site as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion. However, this is provided that the tribe or authoritative representative has informed the agency of the existence of such a site.

1.5.6 Executive Order 12898: Environmental Justice

Executive Order 12898, dated February 11, 1994, instructs Federal agencies, to the greatest extent practicable and permitted by law, make achieving environmental justice part of its mission by addressing, as appropriate, disproportionately high and adverse human health or environmental effects on minority populations and low income populations. Environmental justice means the fair treatment of people of all races, income, and cultures with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative environmental impacts resulting from the execution of environmental programs.

1.5.7 Secretarial Order 3175: Department Responsibilities for Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States (with the Secretary of the Interior acting as trustee) for Indian tribes or Indian individuals. Examples of ITAs are lands, minerals, hunting and fishing rights, and water rights. In many cases, ITAs are on-reservation; however they may also be found off-reservation.

The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian tribes or Indian individuals by treaties, statutes, and executive orders. These rights are sometimes further interpreted through court decisions and regulations. This trust responsibility requires that officials from Federal agencies, including Reclamation, take all actions reasonably necessary to protect ITAs when administering programs under their control.

Chapter 2 DESCRIPTION OF ALTERNATIVES

2.1 Introduction

This chapter describes the two alternatives analyzed in this EA for the proposed project: Alternative A – No Action and Alternative B – Proposed Action.

2.2 Alternative A – No Action

Under the No Action alternative, Reclamation will not drill the replacement groundwater wells and the landowner will continue reliance on existing diversions for water supply resulting in continuing entrainment and impingement of fish species.

2.3 Alternative B – Proposed Action

Under Alternative B, one landowner would convert from surface water diverted from the Entiat River using Gaines Ditch to four groundwater wells. This would result in the elimination of 1.93 cfs being diverted from the Entiat River. Contractors would drill groundwater wells, approximately 40 to 60 feet deep, through the existing lower valley alluvium composed of primarily sand, gravel, and cobbles with silt and clay, into the existing subsurface aquifer. This groundwater supply source should provide additional capacity and operational flexibility for the landowners and help maintain or benefit the existing fisheries. Water produced by the proposed wells would be pumped into the existing irrigation system and onto the landowner properties.

The well site is located on privately-owned land outside of municipal boundaries Chelan County, approximately 5 to 6 miles north of the town of Entiat (Figure 1). The site has been previously disturbed by development of the existing ditch and irrigation practices, and by residential development activities. The well site is within an unincorporated area of the county with no land use zoning requirements.

Figure 1. Site of proposed project.

The wells would be placed on an excavated well pads prepared by the CCD. All drilling fluids and pumped test waters would be contained on the site. No water or drilling fluids would be allowed to flow into nearby natural drainages. A Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented by the drilling contractor. Any temporary

retention structures would be built on previously disturbed land. Work project for the site includes the following:

- Installing new irrigation pipelines in NW1/4 SW1/4 S3 T25N R20E near river mile (RM) 6 of the Entiat River (Ardenvoir 7.5' USGS Topographic Quadrangle and Orthoquad aerial) in Chelan County, Washington on private land(See Appendix A, Figures 1 and 2).

- Drilling four groundwater wells. The present irrigation surface water diversion from the Entiat River into the Gaines Ditch will be converted to the designated groundwater wells located above the Ordinary High Water Line (OHWL) near the Entiat River on the Gollaher property. Electrical hookups and irrigation pipelines will connect to the groundwater wells and include boring under the Entiat River Road, and making connections to new irrigation system upgrades.

  Well depth will be approximately 80 feet (24 m) deep with an 8-inch-diameter casing. Well #1 is located about 167 feet (50 m) north of Well #2, which is located about 329 feet (100 m) north of Well #3, which is located roughly 180 feet (54 m) north of Well #4.

- Providing the staging area for the drilling equipment at each of the respective groundwater well sites, and electrical hook-ups will be approximately 100 feet (33 m) x 30 feet (9 m) N-S x 30 feet (9 m) E-W.

- Connecting irrigation pipelines between the four proposed wells to existing mainlines and new irrigation pipelines. From Well #1 to Well #2, a pipeline will be buried approximately 167 feet long (50 m) N-S by 30 feet wide (9 m) E-W by 3 feet (0.9 m) deep; From Well #2 to Well #3 the pipeline will be buried about 329 feet (100 m) N-S by 30 feet (0.9 m) E-W by 3 feet (0.9 m) deep; From Well #3 to Well #4 pipeline will be about 180 feet (54 m) N-S by 30 feet (0.9 m) E-W by 3 feet (0.9 m) deep. Trench width will be no more than 2 to 3 feet wide.

- Installing new 6-inch-diameter PVC irrigation pipeline from Well #3 to the existing irrigation filter will measure approximately 325 feet (98 m) NE-SW by 30 feet (0.9 m) NW-SE by 3 feet (0.9 m) deep with trench width being no more than 2 to 3 feet wide.

- Installing new 8-inch-diameter PVC irrigation pipeline from Well #4 will be 90 feet (27 m) N-S by 30 feet (9 m) E-W by 3 feet (0.9 m) depth drilled under Bortz Road to the existing irrigation filter system measuring 325 feet (98 m) NE-SW by 30 feet (0.9 m) NW-SE by 3 feet (0.9 m) depth. Then, new 8-inch PVC irrigation pipeline will parallel the south side of Bortz Road for approximately 553 feet (167 m) E-W by 30 feet (9 m) N-S by 3 feet (0.9 m) depth. Trench width will be no more than 2 to 3 feet wide.

The 30 feet wide dimension for each pipeline is assumed to cover the staging of piping materials and the trackhoe excavator machinery footprint.

- Drilling a bore hole measuring approximately 70 feet (21 m) N-S by 10 feet (3 m) E-W by 6 feet (2 m) under the Entiat River Road/Bortz Road intersection, to allow placement of an 8-inch PVC irrigation pipeline across Entiat River Road to access a 3 acre pear block and an 11 acre pear block on an upper terrace;
- Installing new 8-inch-diameter PVC irrigation pipeline from Entiat River Road. The new pipeline will be buried 300 feet (91 m) E-W by 30 feet (9 m) N-S by 3 feet (0.9 m) depth and extend up the terrace (bench) slope to the easternmost side of the upper terrace (bench) pear block; trench width will be no more than 2 to 3 feet wide.
- Installing new 8-inch-diameter PVC irrigation pipeline on the easternmost side of upper terrace (bench) pear block will change direction and be directed N-S for a distance measuring approximately 765 feet (232 m) N-S by 30 feet (0.9 m) E-W by 3 feet (0.9 m) depth and terminate at the site of a new filter and air relief system; Trench width will be no more than 2 to 3 feet wide.
- Providing access corridors for the well site drilling and irrigation developments will utilize open areas through the orchard (about 15 to 20 feet wide), compacted dirt driveways between and connecting outbuildings and other orchard structures and include access from (20 feet wide) Bortz Road (to the well sites) covering approximately 553 feet (167 m) E-W. The depth of disturbance on access roads will be determined by the gross weight of equipment using it; for the drilling operation, a standard Rotary Circulation or Cable Tool Drill Rig will be used and should not disturb more than 1 foot of ground depth. No new access roads will be constructed and equipment will disturb 6 inches or less driving over the land to the development sites.

2.4 Alternatives Considered but Eliminated from Further Study

No other alternatives were considered for this project.

Chapter 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This chapter describes the affected environment and evaluates the environmental consequences of the Proposed Action and implementation of the Preferred Alternative (Alternative B). The No Action alternative (Alternative A) describes the conditions most likely to occur if the Proposed Action were not implemented and provides the basis to compare the action alternative. Cumulative effects and environmental commitments are also presented in this chapter. A summary of impacts by resource for each alternative is provided in Table 1.

Table 1. Summary of environmental impacts by resource for each alternative.

Resource	Alternative		Discussion
	No Action	Proposed	
Water Resources	No	No	No effect to existing surface or groundwater resources.
Threatened and Endangered Species or Critical Habitat	No	No	No effect to existing threatened and endangered species, possible benefit to instream fish and aquatic species.
Vegetation and Wildlife	No	No	No effect to important vegetation or wildlife. Species
Noxious Weeds	No	No	None present.
Soil Erosion	Yes	No	Previously disturbed project location.
Cultural and Archaeological Resources	No	No	Previously disturbed project locations; no cultural resources are known to be present.
Indian Trust Assets	No	No	None present.
Socioeconomics	No	No	No adverse effects, would temporarily create jobs.

3.2 Water Resources

3.2.1 Affected Environment

Prior to the field visit, available geologic and groundwater resource information was reviewed relative to the site and surrounding area. This included a review of well logs on file with the Washington State DOE, local and regional geology (Tabor et al. 1987), local hydrogeology (Kirk, Kerr, and Riddle 1995), and interpreted aquifer thickness within the alluvial valley (Dixon 2003).

Crystalline bedrock underlies glacial, glaciofluvial and alluvial sediments in the Entiat River valley. The bedrock is largely impermeable and is considered the base of the groundwater flow system. Alpine glaciation occurred during the Pleistocene Epoch and a valley glacier extended 30 miles from Mt. Maude to approximately 5 miles above Ardenvoir, where it left a well-defined terminal moraine across the valley. Above the terminal moraine, the upper valley is underlain by glacial drift and glaciofluvial sediments that are generally thicker and less sorted or stratified than the alluvial deposits in the lower valley.

There are no perennial, intermittent, or ephemeral drainages within the project area that would be directly affected. There are no jurisdictional wetlands located within the project area.

No indication of significant degradation within the lower watershed with respect to fecal coliform, dissolved oxygen, pH, or turbidity has been documented (CCCD 2004; Andonaegui 1999). The Entiat River is on the 2004 Section 303(d) list of water quality impaired streams for pH; however, preliminary data indicate pH exceedances are natural and diel in nature (CCCD 2004).

The proposed well sites for this project are located in the lower valley, downstream of the glacial terminal moraine. The lower valley alluvium is generally 25 to 80 feet in thickness and composed of sand, gravel, and cobbles with silt and clay. Based on water level measurements, there is significant interaction between the Entiat River and the groundwater alluvial aquifer. Wells that are located near the river generally have the greatest saturated thickness and better hydraulic connection to recharge from the river.

Temperature

Significant water temperature data have been collected and analyzed in the Entiat River watershed (USFS 2005a; Hendrick and Monahan 2003; CCCD 2002 and 2004; Watershed Sciences LLC 2001; and Dixon 2003). USFS thermograph data indicate temperatures in the lower Entiat River (RM 1-6) exceed standards and occur during mid- to late summer when low flows, high air temperatures, and high insolation rates coincide (USFS 2005a). They are usually of short duration and diurnal in nature. Other factors such as topography,

geomorphology, groundwater storage landforms, riparian conditions, and orientation of the drainages with respect to the surrounding landscape also influence water temperatures in the Entiat River (USFS 2005a). The lower Entiat River was included on the 2004 303(d) list of impaired or threatened waters for temperature; it is currently designated as a Category 4(b) stream for temperature (WDOE 2005).

Sediment / Turbidity

Sediment sampling in the Entiat River has been ongoing annually since 1993 (USFS 2005b). Fine sediment and turbidity levels in the lower Entiat River appear to be linked to annual weather patterns, precipitation, runoff, and land-disturbing events (i.e., mass wasting, logging, forest fire, post-fire storm events). The lower Entiat River is a response reach for the entire Entiat subbasin and is affected by all events upriver. The overall long-term trend of fine sediments in the lower the Entiat River appears to be an overall increase in fines (<1mm-USFS/<0.85mm-USFWS/NOAA Fisheries)(USFS 2007).

The lower Entiat River is in that portion of the watershed referred to as the depositional zone where it is not unexpected to have relatively higher sediment levels than in other parts of the watershed (i.e., the transport zone or the transition zone).

Turbidity in the Entiat River is also associated with annual weather patterns, precipitation, runoff, and land-disturbing activities. Review of the data retrieved from the Keystone Gage (RM 1.4) indicate few spikes in turbidity levels; however, these turbidity spikes have occurred during periods of high flow and correlate to increased sediment transport (CCCD 2004). This indicator is considered to be functioning at risk in the lower Entiat River (USFS 2007).

Chemical Contaminants / Nutrients

Current nutrient concentrations in the main stem Entiat River are well within the range of expected natural conditions. Increases in soft agricultural practices like the use of coddling moth mating disruption pheromones, and reduced application of fertilizer and water based on soil nutrient and moisture monitoring, indicate that contaminant/nutrient levels from agricultural runoff are not likely to increase in the future (USFS 2007).

Water quality in the Entiat River has been affected in the past by practices that include flood control, logging and related road construction, livestock grazing, and past agricultural uses. Significant positive changes and/or reductions have been made in several of these land uses. Logging and grazing in the watershed has declined significantly, and agricultural practices have improved with new and improved technology. Watershed-level restoration emphasizing road rehabilitation has become a major focus of federal land managers, as well as others (CCCD 2004).

3.2.2 Environmental Consequences

Alternative A – No Action

There would be no effects on groundwater resources under the No Action alternative. Under Alternative A – No Action, the surface water would continue to be used from the Entiat River to supply the landowners under their existing water rights. The current fish mortalities related to diversions and screens would continue.

Alternative B – Proposed Action

It is unlikely that there would be any adverse effects as a result of Alternative B. There could potentially be some benefit to surface water resources.

The location of the wells and well piping and limited removal of native riparian vegetation as part of the projects is not expected to have a measurable effect on water temperature, sediment or turbidity and the projects will neither introduce nor remove any potential chemical or nutrient components from the watershed, thereby maintaining these indicators in the Entiat River watershed.

Using groundwater wells in the vicinity of the proposed locations would increase fisheries survival by increasing water left in the main stem Entiat River. Water resources and the drainage would not be adversely impacted; however, depending on the location of the wells some indirect impacts from construction may temporarily increase sedimentation and turbidity, but will likely not increase to such a levels that it may cause injury to fish that may be present within the action area. Some ground-disturbing construction activities could potentially temporarily degrade aquatic habitat through erosion and subsequent sediment transport and delivery to streams which could resort in the short-term reduction in the quality and quantity of spawning and rearing habitat (Meehan 1991).

3.3 Threatened and Endangered Species

The results of the threatened and endangered species section in this EA are taken from the April 2007 *Biological Assessment (BA) for the Lower Entiat River Restoration Projects and Irrigation System Enhancements Final Draft* and are presented as "effect determinations" that indicate whether federally-listed species under the jurisdiction of either the USFWS or the National Marine Fisheries Service (NOAA Fisheries Service) may be affected by the projects and to what degree they may be affected. The BA and this EA have been prepared pursuant to the final rules for interagency cooperation under the ESA of 1973, as amended, and the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) of 1996.

3.3.1 Affected Environment

Currently under the ESA, there are seven listed threatened and endangered species within Chelan County and the affected area, not including anadromous fish species (Appendix B). These include the Gray wolf, Showey stickseed plant, Wenatchee mountains checker-mallow plant, all listed as endangered; and bull trout, Canadian lynx, Grizzley bear, Marbled Murrelet, Northern spotted owl and Ute-ladies' tresses as threatened species. Endangered fish species include anadromous spring and summer Chinook salmon, and Upper Columbia River steelhead. Endangered and threatened fish species within the lower Entiat River, include Upper Columbia River spring Chinook salmon (*Oncorhynchus tshawytscha*)- Endangered; Upper Columbia River steelhead (*O. mykiss*) - Threatened and Upper Columbia River bull trout (*Salvelinus confluentus*), listed as Threatened. Critical habitat for Upper Columbia River Spring Chinook salmon and upper Columbia River Steelhead was designated on September 2, 2005 (70 FR 52631) for the Entiat River. The Entiat River provides Essential Fish Habitat (EFH) for coho and Chinook salmon as defined by the Pacific Fishery Management Council (PFMC 1999). The lower river contains a steelhead minor spawning area and the entire river is designated a major spawning area for spring Chinook (UCSRB 2006). No bull trout redds have been observed within the lower 6 miles of the Entiat River.

3.3.2 Environmental Consequences

Alternative A – No Action

There would be no change to the existing conditions and no effects to ESA-listed species under the No Action alternative.

Alternative B – Proposed Action

The project is not likely to adversely affect steelhead and spring Chinook based on the potential for these species to occur in the project action areas during project construction and the analysis of potential direct, indirect, and cumulative effects as well as the potential beneficial effect of this project on these species.

In 1997, the Washington Department of Fish and Wildlife (WDFW) Yakima Screen Shop completed a ground survey inventory of irrigation structures in the Entiat River watershed. The inventory identified two of the six surface water diversions and eight of the 45 pump diversions did not meet WDFW criteria for properly screened diversions (for the protection of juvenile fish). It was determined from these analyses that potential short-term impacts to these salmonid species will be negligible and the long-term benefits of the project will improve conditions and likely result in increased production for ESA-listed species.

Additionally, the project will not result in the destruction or adverse modification of designated critical habitat (USFS 2007).

The project is not likely to adversely affect bull trout based on the potential for this species to occur in the project action area during project construction and the analysis of potential direct, indirect, and cumulative effects.

Despite increasing redd counts in recent years, the bull trout subpopulation in the Entiat Rivers is considered to be functioning at risk due to the overall relatively low population size and uncertainty about productivity at present spawning locations (USFS 2005a). It was determined from these analyses that the project is not expected to have any measurable effect on the subpopulation size and the potential short-term impacts to this species will not be discountable or insignificant although the long-term benefits of the project may improve conditions and result in increased production for bull trout (USFS 2007). However, it is recognized that the project will improve conditions for adult and juvenile salmonids, which may indirectly improve foraging opportunities for migratory bull trout.

Additionally, the project would have no effect to bald eagles, northern spotted owls, Canada lynx, grizzly bears, gray wolves, showy stickseed (*Hackelia venusta*), Wenatchee mountains checker-mallow (*Sidalcea oregano var. calva*), and Ute ladies-tresses (*Spiranthes diluvialis*), which may be present within Chelan County (USFS 2007). These species have not been documented in the project action areas and are not expected to occur based on a lack of appropriate habitat conditions; therefore, they are not addressed further in this EA.

In accordance with the EFH requirements of the Magnuson-Stevens Act, it has been determined that the project would have no adverse effect to EFH for Pacific salmon species. The project would improve habitat conditions within the lower Entiat River watershed and is not expected to measurably affect this indicator, thereby maintaining this indicator.

The indirect effects of the project include the anticipated increase in production for salmonids within the lower Entiat River. The anticipated increase in production will have a temporal, beneficial impact to fish and other aquatic organisms but will not affect the delineation of the project action area because conditions within the project reach will improve for fish locally over time but not over a known or measurable distance.

3.4 Vegetation and Wildlife

3.4.1 Affected Environment

Vegetation ranges from semi-arid shrub steppe in the lower end of the watershed to about 1,300 acres of lower valley orchards classified as prime agricultural land (USFS 1996). Natural shrub-steppe habitat in upland areas above the flood plain or valley bottom of the

river is relatively unchanged. Riparian vegetation is sparse and typically consists of narrow, fragmented patches of trees along the bank.

Much of the riparian habitat within the valley bottom and flood plain areas of the subbasin has been altered, mostly by orchard owners who believe that riparian vegetation serves as alternative housing for orchard pests. Significant additional riparian vegetation has been removed or diminished by road construction, timber harvest, and fire damage in riparian areas.

The privately-owned lower 20.1 miles of the Entiat River, contains more than 75 percent of the riparian habitat in the main stem Entiat River (Rock Island Dam Hydroelectric Facility et al. 1998). This area was surveyed in 1995 by the Natural Resource Conservation Service (NRCS) resulting in the *Entiat River Inventory and Analysis* (NRCS 1998) and a report by Mullan et al. (1992) that documented the low habitat diversity present in the lower reach, specifically the lack of pools and large woody debris. Most of the salmonid spawning and rearing occur in this lower Entiat River subbasin and these two factors are the primary limitations to natural production of salmon. These impacts can be related to flood control efforts undertaken in the Entiat Valley to protect infrastructure and agriculture in flood-prone areas following the flood events of the 1940s and 1970s. As a result, virtually all of the lower 10 to 15 miles of the Entiat River have been effectively channelized. Flood plain confinement due to a Corps flood control project and the Entiat River Road (Co. Hwy. 19) leave few resting areas for adult and juvenile salmon.

3.4.2 Environmental Consequences

Alternative A – No Action

Under the No Action alternative, existing vegetation, including native and non-native species, would remain in place and would not provide suitable habitat for most wildlife. Disturbance-related vegetation species will likely persist and areas void of vegetation will likely be susceptible to erosion from wind and water.

Alternative B – Proposed Action

Activities associated with implementation of Alternative B would not disrupt portions of the landscape that are not currently highly disturbed. Native grasses and wildflowers would be seeded in areas disturbed by construction that are not needed for well operation, to re-establish an appropriate vegetative cover.

The temporal loss of riparian vegetation is expected to have a negligible impact to the aquatic environment. The vegetation to be removed does not afford shade to the river, although it

does provide allochthanous organic input, streambank stability, and some overhead cover along the left bank stream margins.

Although construction activities may displace existing wildlife temporarily, most animal species in the project area would be able to return after project completion. Some mortality of less-mobile species would be expected as a result of construction, but not in quantities that would damage local populations.

3.5 Noxious Weeds

Noxious weeds are classified as non-native plants that have been introduced to Washington through human actions. Because of their aggressive growth and lack of natural rivals or competitors, these species are highly destructive, competitive, and difficult to control (Chelan County 2003).

The area of the proposed project has been cultivated and disturbed; therefore, the potential exists for the intrusion and establishment of noxious weeds. The possible noxious weeds that can be found in the area associated with the proposed wells include:

Common Name	**Scientific Name**
Garlic Mustard	*Alliaria petiolata*
Daisy Oxeye	*Luecanthemum vulgare*
Diffuse Knapweed	*Centaurea diffusa*
Spotted Knapweed	*Centaurea biebersteinii*
Canada Thistle	*Cirsium arvense*
Russian Thistle	*Salsola tragus*
Puncturevine	*Tribulus terrestris*
Purple Loosestrife	*Lythrum salicaia*
Houndstongue	*Cynoglossum officinale*
Reed Canarygrass	*Phalaris arundinacea*
Poison Hemlock	*Conium maculatum*
Common St. Johnswort	*Hyericum perforatum*
Dalmatian Toadflax	*Linaria dalmatica*
Wild Four O'Clock	*Mirabilis nyctaginea*

Washington State's weed law (RCW 17.10) mandates the control of many weed species. "Control" is defined in WAC 16- 750 as the prevention of all seed production. RCW 17.10 requires all landowners, including counties and state land agencies to be responsible for controlling weeds on their property. Federally-owned lands are subject to the Federal Noxious Weed Act (Public Law 93- 629). The state and county weed boards are available to

provide information on identification and control options for people unfamiliar with noxious weeds. Landowners can choose the control method they feel is most appropriate for their property. When landowners fail to comply with the RCW 17.10, the Chelan County Noxious Weed Control Board may cause their being controlled at the expense of the owner (Chelan County 2003).

3.5.1 Environmental Consequences

Alternative A – No Action

Under the No Action alternative, no additional ground-disturbing activities will be undertaken. Therefore, there will be no effect on any existing noxious weed infestations.

Alternative B – Proposed Action

Whenever land is disturbed, the potential exists for the intrusion and establishment of noxious weeds. Implementation of Alternative B could result in land disturbance, depending upon how much space is ultimately needed for construction and staging activities at each location. To minimize the potential for the continued establishment and spread of State-listed and other noxious weeds, a revegetation plan would be implemented. In addition to reseeding areas disturbed during construction, the introduction of noxious weed seeds would be minimized by a requirement that all equipment used on the project be pressure-washed before arriving and leaving the site. As such, the potential for noxious weeds becoming established in the project area over time would be minimal.

3.6 Soil Erosion

3.6.1 Affected Environment

Any activities that reduce or eliminate vegetation have the potential to result in soil erosion until vegetation is re-established. The project area has been disturbed as a result of past residential development activities. Residential development (e.g., home sites and access roads) activities often eliminate or reduce vegetation cover, even if only temporarily and thus become a potential cause of soil erosion during periods of precipitation runoff. Some limited soil erosion at the project area was observed during recent site visits.

3.6.2 Environmental Consequences

Alternative A – No Action

Erosion of existing soils within the project area would continue under the No Action alternative until such time as the vegetation becomes re-established naturally.

Alternative B – Proposed Action

As a result of Alternative B, the removal of vegetation and disturbance of soil during construction could result in localized soil erosion at the project area. Sedimentation and erosion associated with construction of the project could potentially affect fish and fish habitat. Ground-disturbing construction activities could potentially degrade aquatic habitat through erosion and subsequent sediment transport and delivery to streams. Spawning activity by late-run Chinook salmon (not listed under ESA) and steelhead has been documented within the project action areas; however, the projects would not introduce any significant quantities of fine sediments to the system that may affect spawning areas, further increase substrate embeddedness, or degrade existing channel conditions.

However, standard construction best management practices (BMPs) would be implemented to minimize sediment inputs to the river during construction, as well minimize potential increases in turbidity associated with in-water activities. Consequently, most runoff would be contained within the active construction site. The re-establishment of native vegetation in the project area following construction would ultimately reduce soil erosion.

3.7 Cultural Resources

Though Reclamation assumed the lead agency responsibility for cultural resource compliance, CCD completed the NHPA Section 106 process on Reclamation's behalf. Cultural resource surveys were conducted, reviewed, and used to determine the impacts to historic properties, if they are present, and to follow NEPA and Section 106 NHPA as required by law.

The project is located on the USGS 7.5' Ardenvoir, Washington topographic quadrangle. The Area of Potential Effect (APE) is limited to the construction footprints of the property's buried irrigation pipelines and wells.

3.7.1 Affected Environment

The CCD implemented cultural resource site identification surveys to determine if any historic properties occur at or near the locations of the planned conservation practices in each of the listed project areas. The cultural resource identification consisted of a brief literature

review and field inspection for archeological sites and standing structures, primarily through pedestrian surveys. As part of this cultural resources review, CCD consulted with Native American Tribal Historic Preservation Office (THPO) and tribal archeologists to determine whether this project would affect known traditional cultural properties (TCPs).

3.7.2 Environmental Consequences

Alternative A – No Action

There will be no effects to cultural or archaeological resources, or sacred sites, under the No Action alternative.

Alternative B – Proposed Action

There are no structures or sites eligible for the National Register of Historic Places (NRHP) that would be affected as a result of Alternative B. No historic properties of any time period or type were identified within the APEs (Amara 2010). It has been determined that the Proposed Action would have no effect to cultural or archaeological resources. If cultural or archaeological resources are encountered during site construction or drilling activities, work would cease and the Reclamation Area Archaeologist would be notified immediately. In addition, no sacred sites or TCPs are known to exist in the project area. However, should consultation with Tribes result in the identification of any such sites or properties, Reclamation would consult with the concerned Tribes to ensure no adverse effects result from the Proposed Action.

3.8 Indian Trust Assets

3.8.1 Affected Environment

Indian Trust Assets (ITAs) are defined as legal interests in assets held in trust by the U.S. Government for Native American Indian tribes or individual tribal members. Examples of ITAs are lands, minerals, water rights, other natural resources, money, or claims. An ITA cannot be sold, leased, or otherwise alienated without approval of the Federal government. Reclamation consultation with potentially affected Tribes and the Bureau of Indian Affairs has yielded no known ITAs within the project area.

3.8.2 Environmental Consequences

Alternative A – No Action

Under Alternative A – No Action, there will be no effect on ITAs since no known ITAs have been identified in the project area.

Alternative B – Proposed Action

Under Alternative B, there would be no impacts on ITAs since no known ITAs have been identified in the project area.

3.9 Socioeconomics

Executive Order 12898 (1994) mandates Federal agencies to identify and address any impact the action would have on environmental justice with regard to human health as well as social and economic issues. The Entiat area has a diverse geographical terrain that provides opportunity for agricultural production and recreation. This section describes and analyzes the general features of the population, including the minority population, and employment that could be affected by the Proposed Action.

3.9.1 Affected Environment

The U.S. Census Bureau does not have specific information for the Entiat Well Project Area; therefore, the following information is for Chelan County and the nearest town of Entiat. The population in Chelan County in 2008 was 71,540; and the town of Entiat had a population of 957 based on 2000 census sample data (Census 2008). The density information is based on 700.6 people per square mile for the Entiat area.

The median household income and per capita income for Chelan County are $37,316 and $51,250, respectively (income in 1999 for Chelan County). The median household income for the city of Entiat was $33,450, and the median income for a family was $37,083. Males had a median income of $33,487 versus $21,324 for females. The per capita income for the city was $13,529. About 9.1 percent of families and 14.0 percent of the population were below the poverty line. Approximately 14.4 percent of those were under age 18 and 5.7 percent were age 65 or over.

Washington State has a low unemployment rate at 4.1 percent. The distribution of employment by industry within the Chelan County service sector includes production and transportation (25 percent) as the highest percentage of professionals followed by sales, services, construction, and farming, accounting for 10 percent of the total employment.

3.9.2 Environmental Consequences

Alternative A – No Action

There will be no effects to socioeconomics under the No Action alternative.

Alternative B – Proposed Action

Alternative B may result in the creation of a small number of jobs for contractors during site construction and drilling activities. Construction and drilling activities are anticipated to take several months to complete and could employ several individuals during that time period. Assuming materials would be purchased locally and workers would be employed from the Chelan County area, the Proposed Action would result in minor beneficial effects on the local economy.

3.10 Environmental Justice

3.10.1 Affected Environment

Executive Order 12898, dated February 11, 1994, requires agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks. Environmental justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the environment. Fair treatment implies that no group should bear a disproportionate share of negative impacts.

Environmental justice analysis examines disproportionately high or adverse impacts to minority and low-income populations resulting from the implementation of the proposed action. These populations are:

- Minority populations: persons of Hispanic or Latino, African-American, American-Indian and Alaska Native, Asian, Pacific Islander origins.
- Low-income populations: persons living below the poverty level, based on a weighted- average total-annual income of $8,501 for a single person.

Information contained in the 2000 Census of population was used to identify these populations. The 2000 Census does set apart individuals identified as Hispanic or Latino heritage from the rest of the categories for Entiat. Data from the 2000 Census show that the white racial category comprises the highest percent for Entiat, Chelan County, and Washington.

According to the most recent data from the U.S. Census Bureau (2008), 72.9 percent of the residents of Chelan County were Hispanic or Latino, 0.3 percent were Black or African American, and 13.9 percent were American Indian or Alaska Native in the year 2000.

3.10.2 Environmental Consequences

Alternative A – No Action

The No Action alternative will not cause disproportionately adverse social, economic, or human health impacts to local minority or low-income populations. There will be no effects under the No Action alternative.

Alternative B – Proposed Action

Alternative B would not cause disproportionately adverse social, economic, or human health impacts to local minority or low-income populations; therefore, there would be no effects to socioeconomics as a result of Alternative B.

3.11 Cumulative Effects

A cumulative effect results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Cumulative effects were not analyzed in this EA because the habitat restoration projects being conducted in this watershed are covered in the Bonneville Power Administration's (BPA) *Fish and Wildlife Implementation Plan Environmental Impact Statement* (EIS) of April 2003 (BPA 2003). The programmatic EIS considers both the broad-based actions (e.g., policy and programs) and the site specific actions for habitat restoration. All reasonably foreseeable future habitat projects conducted in the watershed will be conducted under procedures outlined in the BPA EIS.

3.12 Environmental Commitments

- Should evidence of possible scientific, prehistoric, historic, or archeological data be discovered during the course of this action, work will cease at that location and the Reclamation Area Archaeologist will be notified by phone immediately, with the location and nature of the findings. Care will be exercised to not disturb or damage artifacts uncovered during operations, and the proponents will provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the Government. Any person who knows or has reason to know that he or she has inadvertently discovered human remains on Federal or tribal lands, must provide immediate telephone notification of the inadvertent discovery,

with written confirmation, to the responsible Federal agency official with respect to Federal lands, and, with respect to tribal lands, to the responsible Indian tribe official. The requirement is prescribed under the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3042) of November 1990 and National Historic Preservation Act, Section 1 10(a)(2)(E)(iii) (P.L. 102-575, 106 Stat. 4753) of October 1992.

- Native grasses and wildflowers will be seeded in areas disturbed by construction to re-establish vegetation. Only the amount of the proposed staging and drilling areas needed would be used or disturbed. Upon completion of stabilization activities, all work areas would be cleaned up and all materials and equipment removed.
- To minimize the potential for the establishment of State-listed and other noxious weeds, an aggressive revegetation plan will be implemented. In addition to seeding, the introduction of noxious weed seeds would be minimized by requiring that all project equipment be pressure-washed before arriving and leaving the project area.
- To minimize soil erosion during rain storms, standard construction BMPs will be utilized to minimize runoff during construction activities.
- Fugitive dust will be suppressed by spreading water over disturbed areas where heavy equipment is working during dry conditions.

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Chapter 4 CONSULTATION AND COORDINATION

This chapter presents the agencies and individuals consulted in the development of this EA. CCD prepared a memorandum at Reclamation's request to summarize how public involvement has been a part of this project's planning process. This memo describes the project's relationship to the 2004 Entiat Water Resource Inventory Area (WRIA) Management Plan (Implementation Plan) which calls for converting surface water diversions to groundwater wells when feasible and improving the efficiency of on-farm irrigation systems. This Implementation Plan was required to be administered through an open, public process. The CCD has been the lead public jurisdiction to ensure the process has been followed (Appendix C).

4.1 Persons and Agencies Consultation

The identification, prioritization, and coordination of the Entiat Wells Project has been accomplished within the framework of the Implementation Plan as administered by the EWPU. A critical component to this EWPU planning process is public involvement. The participants in the EWPU are made up of a diverse group of stakeholders representing a wide range of interests including local governments and districts, citizens, tribes, State and Federal agencies, irrigation, agriculture, forestry, community groups, conservation groups, economic development, and recreation. Development of the plan was done through a voluntary, collaborative process supported through the 1998 Watershed Management Act (RCW 90.82) which provided the framework and funding for locally-based planning of water resource related issues (the EWPU).

Potential landowners for surface diversion to groundwater wells were identified by CCD more than 5 years ago. Those previously identified landowners for groundwater wells were divided into two separate projects, a Washington DOE funded project and the ARRA project.

The following summarizes the various meetings and field work associated with the development of this proposed project.

July 2009	Initial contacts with perspective landlowners, Les Julian, Alan Moen, Randy Whitehall, and Jim Gollaher.
November 5 and December 22, 2009	Field work with Reclamation hydrogeologist, Kayti Didricksen. CCD arranged a site visit to meet with the private

	landowners/irrigators in preparation for landowner agreements and to conduct a field review of possible locations for construction of the irrigation wells.
November 22, 2009	Meeting with Jim Gollaher and Alan Moen about potential well sites.
February 23, 2009	Received memo/report from Ms. Didricksen on possible disposition of proposed wells.
March 2009	Contacts with Ladd Irrigation to conduct an irrigation assessment on Gollaher property.
April 5, 2009	Field review with Ladd Irrigation on irrigation design of Gollaher property.
April 5, 2010	Field meeting with Ladd Irrigation (Kurt Yungers), Kurt Hosman (Natural Resource Specialist, Cascadia Conservation District), Jim Gollaher (landowner), and Michael Sandidge (Natural Resource Specialist, Cascadia Conservation District).
April 7, 2010	Issuance of Chelan County permit to bore under the Entiat River Road as part of the irrigation design for Gollaher property.
May 10 – 11, 2010	Final location of proposed groundwater wells on Gollaher property.
June 1, 2010	Completion of APE reports for initiating cultural resources work.
June 2, 2010	Filing of first 30-day letter on Whitehall property by Conservation District's Cultural Resources Archeologist, Mark Amara.
June 17, 2010	Filing of first 30-day letter on Gollaher property by Cascadia Conservation District's Cultural Resources Archeologist, Mark Amara.
July 17 and 21, 2010	Field work and meetings with Jim Gollaher and Randy and Karen Whitehall
August 18 – 20, 2010	Informal request for costs associated with well size variations, per Ms. Didricksen's recommendations, with ITC Well Drilling, Tumwater Drilling, and Fogel Pump and Supply.
August 23, 2010	Completion of report by archeologist on Gollaher property.

August 26, 2010 Acquisition of easement authorization for Whitehall AARA well.

September 8, 2010 Proposed field work date on Whitehall property.

On behalf of Reclamation, CCD also formally invited comments from the Yakama Indian Nation, Coleville Confederated Tribes, and the Washington State Department of Archeology and Historic Preservation under Section 106 of the NHPA, implementing regulations (36 CFR 800) (Appendix C).

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Chapter 5 LITERATURE CITED

Parenthetical Reference	Bibliographic Citation
70 FR 52631	Federal Register. 2005. Endangered and Threatened Species; Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho. September 2, 2005. Vol. 70, No. 170, Pp. 52361
Amara 2010	Amara, Mark. 2010. Cascadia Conservation District. Cultural Resources Site Identification Survey. Wenatchee, Washington. August 23.
Andonaegui 1999	Andonaegui, C. 1999. Salmon and Steelhead Habitat Limiting Factors Report for the Entiat Watershed Water Resource Inventory Area (WRIA) 46, Version 3. Washington State Conservation Commission, Headquarters Office: PO Box 47721, Olympia, Washington 98504-7721
CCD 2002	Chelan County Conservation District. 2002. *Entiat Valley Watershed Study: Final Coorindated Resource Management Plan/First Draft WRIA 46 Management Plan.* Chelan County Conservation District, Wenatchee, Washington.
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APPENDICES

Appendix A Site Locations

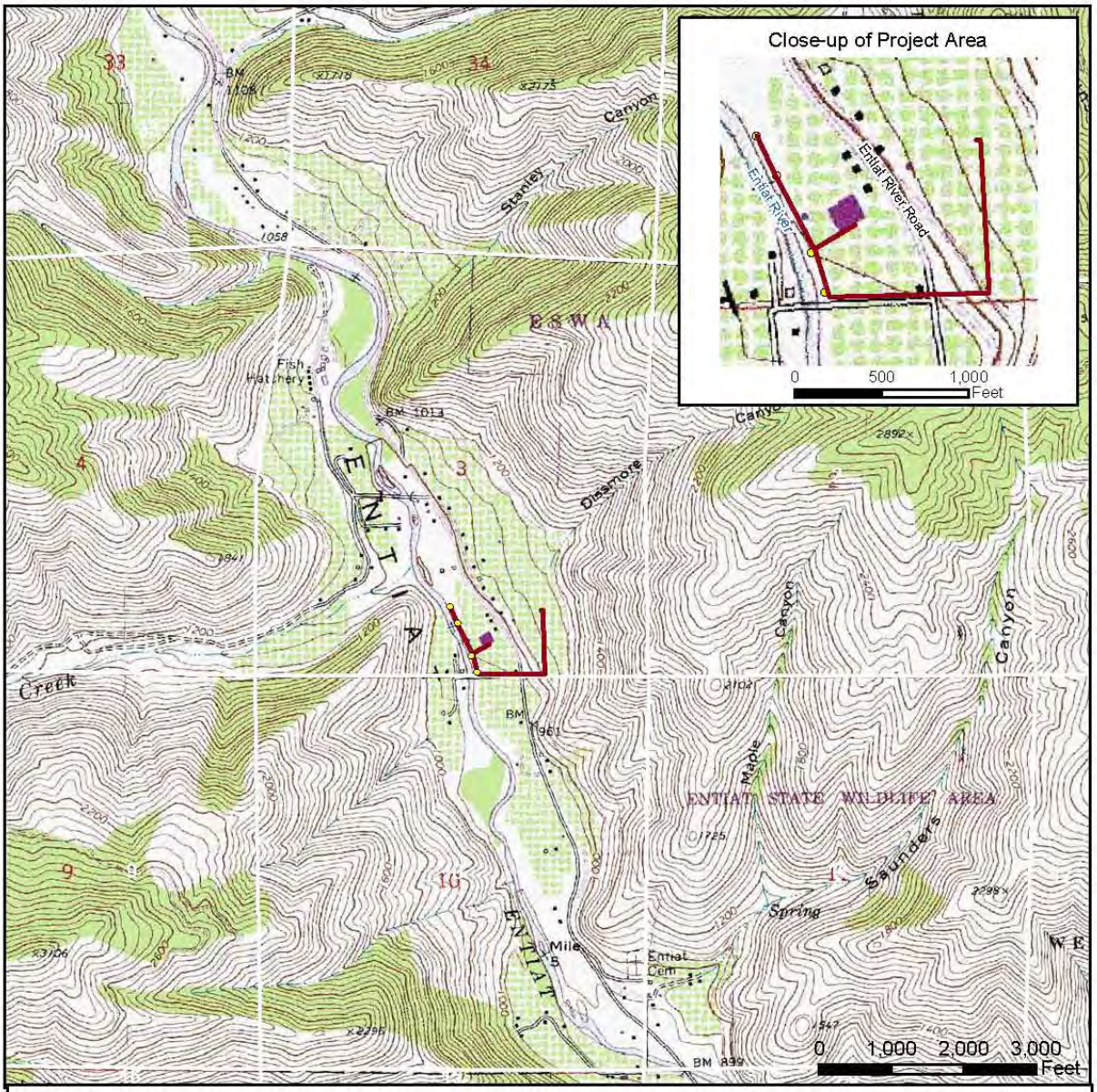

Figure 1. Ardenvoir, WA Topographic (1:24,000) Quadrangle Showing Entiat Surface Water to Wells - Jim Gollaher Area of Potential Effect (APE)

Project Location

Chelan County Tax Parcels
252003430200
252003130350
252003430400
252003430300

SW1/4 of SE 1/4 of Section 3, T25N, R20E

Project Components

New underground irrigation piping

Well Site Location

CASCADIA CONSERVATION DISTRICT

This map was made by the Cascadia Conservation District for illustration purposes only. Produced by K. Koenig May 2010.

Figure 1. Jim Gollaher

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Figure 2. Orthoquad (1:24,000) Quadrangle Showing Entiat Surface Water to Wells - Jim Gollaher Area of Potential Effect (APE)

Project Location

Chelan County Tax Parcels
252003430200
252003130350
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SW1/4 of SE 1/4 of Section 3, T25N, R20E

Project Components

New underground irrigation piping

Well Site Location

CASCADIA CONSERVATION DISTRICT

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Figure 2. **Gollaher – Area of Potential Effect (APE)**

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Appendix B Threatened and Endangered Species List

CHELAN COUNTY
Updated 7/24/2008

LISTED

Endangered

Gray wolf *(Canis lupus)*
Hackelia venusta (Showy stickseed), plant
Sidalcea oregana var. *calva* (Wenatchee Mountains checker-mallow), plant

Threatened

Bull trout *(Salvelinus confluentus)* – Columbia River distinct population segment
Canada lynx *(Lynx canadensis)*
Grizzly bear *(Ursus arctos horribilis)*
Marbled murrelet *(Brachyramphus marmoratus)*
Northern spotted owl *(Strix occidentalis caurina)*
Spiranthes diluvialis (Ute ladies'-tresses), plant

Designated

Critical habitat for the northern spotted owl
Critical habitat for *Sidalcea oregana* var. *calva* (Wenatchee Mountains checker-mallow)
Critical habitat for the Canada lynx (contact USFWS, Spokane Field Office, for specific location information, at 509-893-8014)

Proposed

* Additional critical habitat for the Canada lynx (contact USFWS, Spokane Field Office, for specific location information, at 509-893-8014)

CANDIDATE

Bald eagle *(Haliaeetus leucocephalus)* (delisted, monitor status)
Fisher *(Martes pennanti)* - West Coast distinct population segment, west of Okanogan River
Yellow-billed cuckoo (*Coccyzus americanus*)

SPECIES OF CONCERN

Animals

Black swift (*Cypseloides niger*)
California floater *(Anodonta californiensis)*, mussel

Columbian sharp-tailed grouse *(Tympanuchus phasianellus columbianus)*
Ferruginous hawk *(Buteo regalis)*
Giant Columbia spire snail *(Fluminicola columbiana)*
Kincaid meadow vole (*Microtus pennsylvanicus kincaidi*)
Loggerhead shrike *(Lanius ludovicianus)*
Long-eared myotis (*Myotis evotis*)
Northern goshawk *(Accipiter gentilis)*
Olive-sided flycatcher *(Contopus cooperi)*
Pacific lamprey *(Lampetra tridentata)*
Pallid Townsend's big-eared bat *(Corynorhinus townsendii pallescens)*
Peregrine falcon (*Falco peregrinus*) (Delisted, monitor status)
Pygmy whitefish (*Prosopium coulteri*)
Redband trout *(Oncorhynchus mykiss)*
River lamprey (*Lampetra ayresi*)
Sagebrush lizard *(Sceloporus graciosus)*
Sharptail snake (*Contia tenius*)
Western brook lamprey (*Lampetra richardsoni*)
Western gray squirrel *(Sciurus griseus griseus)*
Westslope cutthroat trout *(Oncorhynchus clarki lewisi)*
Wolverine *(Gulo gulo)*

Vascular Plants

Astragalus sinuatus (Whited's milk-vetch)
Botrychium paradoxum (Two-spiked moonwort)
Cypripedium fasciculatum (Clustered lady's-slipper)
Delphinium viridescens (Wenatchee larkspur)
Petrophyton cinerascens (Chelan rockmat)
Pinus albicaulis (Whitebark pine)
Silene seelyi (Seely's silene)
Trifolium thompsonii (Thompson's clover)

Appendix C Tribal and Cultural Correspondence

June 17, 2010

Camille Pleasants
Tribal Historic Preservation Officer
History/Archaeology Department
Confederated Tribes of the Colville Reservation
PO Box 150
Nespelem, WA 99155

Subject: ARRA Wells Project at the Gollaher Property, Chelan County, Washington

Jim Gollaher is cooperating with Cascadia Conservation District and the US Bureau of Reclamation (BOR) to drill irrigation wells and install new irrigation pipelines in NW1/4 SW1/4 S3 T25N R20E near River Mile 6 of the Entiat River (Ardenvoir 7.5' USGS Topographic Quadrangle and Orthoquad aerial – Figures 1 and 2) in Chelan County, Washington on private land.

Cascadia Conservation District is coordinating efforts to convert surface water diversions to groundwater wells on this property in the lower Entiat River Valley. Funding for this surface water diversion to ground water well project is provided by the America Recovery Reinvestment Act (ARRA) through the Cascadia Conservation District (CCD) from the BOR, who is the lead permitting agency. Though BOR has assumed the lead agency responsibility for cultural resource compliance, Cascadia Conservation District will complete the NHPA Section 106 process on BOR's behalf. Cultural resources reviews are being conducted to determine the impacts to historic properties, if they are present, and to follow NEPA and Section 106 NHPA as required by law.

Due to the planned expenditure of federal funds, cultural resources surveys are being designed to review existing history and prehistory of the area and identify potential areas to be impacted by the planned ground disturbances. Your assistance is needed to determine if physical evidences of cultural resources or traditional cultural properties are present on the Area of Potential Effects (APE) as defined below to comply with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA 36 CFR Part 800). Goals also include identification and analysis of cultural resources that may qualify as historic properties, resolve any adverse effects, and address Native American concerns. In accordance with Section 106 of National Historic Preservation Act (NHPA), your input on these issues is requested as part of the consultation process.

Jim Gollaher plans to drill four ground water wells. The present irrigation surface water diversion from the Entiat River into the Gaines Ditch will be converted to the designated groundwater wells located above the Ordinary High Water Line (OHWL) near the Entiat River on the Gollaher property. Electrical hookups and irrigation pipelines will connect to the ground water wells and include boring under the Entiat River Road, and making connections to new irrigation system upgrades.

- Specifically, the staging area for the drilling equipment at each of the respective ground water well sites, and electrical hook-ups will be approximately 100' (33 m) x 30' (9 m) N-S x 30' (9 m) E-W depending on how efficient the drill rig operator is with his equipment.

- Well depth will be approximately 80 feet (24 m) deep with an 8" diameter casing. Well #1 is located about 167' (50 m) north of Well #2, which is located about 329' (100 m) north of Well #3, which is located roughly 180' (54 m) north of Well #4.

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  The 30' wide dimension for each pipeline is assumed to cover the staging of piping materials and the trackhoe excavator machinery footprint.

- Under the Entiat River Road/Bortz Road intersection, a bore hole measuring approximately 70' (21 m) N-S by 10' (3 m) E-W by 6' (2 m) depth will be drilled to allow placement of an 8" pvc irrigation pipeline across Entiat River Road to access a 3 acre pear block and an 11 acre pear block on an upper terrace;

- New 8" diameter pvc irrigation pipeline from Entiat River Road will be buried 300' (91 m) E-W by 30' (9 m) N-S by 3' (0.9 m) depth and extend up the terrace (bench) slope to the easternmost side of the upper terrace (bench) pear block; Trench width will be no more than 2-3' wide.

- New 8" diameter pvc irrigation pipeline on the easternmost side of upper terrace (bench) pear block will change direction and be directed N-S for a distance measuring approximately 765' (232 m) N-S by 30' (0.9 m) E-W by 3' (0.9 m) depth and terminate at the site of a new filter and air relief system; Trench width will be no more than 2-3' wide.

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Plans are to conduct pedestrian surveys over the accesses to each well site and planned pipeline and to conduct systematic subsurface testing of all APEs in addition to performing thorough background checks.

Construction is planned for Fall 2010. Each of the planned ground disturbing undertakings is relatively small in size and scope and the impacts on the landscape will complement prior disturbances, seek to enhance the quality of the environment and protect water quality. Background research, past planning

and implementation efforts, field surveys, and degree of previous disturbances will be used to identify and record cultural resources and determine their potential for national register eligibility.

Comments must be received no later than 30 days from the receipt of this letter.

Sincerely,

Mark Amara
Cultural Resources Specialist
mark_amara@live.com

Cc: Kurt Hosman, Natural Resource Specialist, Cascadia Conservation District, Wenatchee
Mike Sandidge, Natural Resource Specialist, Cascadia Conservation District, Wenatchee
Steve Kolk, Engineer, Bureau of Reclamation, Wenatchee
Gretchen Fitzgerald, Cultural Resources Coordinator, Bureau of Reclamation, Boise
Dr. Rob Whitlam, State Archaeologist, Department of Archaeology & Historic Preservation, Olympia
Randy Kelley, District Conservationist, Natural Resources Conservation Service, Okanogan

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June 17, 2010

Dr. Rob Whitlam, State Archaeologist
Department of Archaeology and Historic Preservation
1063 S. Capitol Way, Suite 106
PO Box 48343
Olympia, WA 98504-8343

Subject: ARRA Wells Project at the Gollaher Property, Chelan County, Washington

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Camille Pleasants, THPO, Confederated Tribes of the Colville Reservation, Nespelem
Kate Valdez, THPO, Confederated Tribes and Bands of the Yakama Nation, Toppenish
Randy Kelley, District Conservationist, Natural Resources Conservation Service, Okanogan

June 17, 2010

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Kate Valdez
Tribal Historic Preservation Officer
Confederated Tribes and Bands of the Yakama Nation
PO Box 151
Toppenish, WA 98948

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Steve Kolk, Engineer, Bureau of Reclamation, Wenatchee
Gretchen Fitzgerald, Cultural Resources Coordinator, Bureau of Reclamation, Boise
Dr. Rob Whitlam, State Archaeologist, DAHP, Olympia
Randy Kelley, District Conservationist, NRCS, Okanogan

May 25, 2010

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Camille Pleasants
Tribal Historic Preservation Officer
History/Archaeology Department
Confederated Tribes of the Colville Reservation
PO Box 150
Nespelem, WA 99155

Subject: ARRA Well Project at the Whitehall Property, Chelan County, Washington

Randy Whitehall is cooperating with Cascadia Conservation District and the US Bureau of Reclamation (BOR) to drill an irrigation well in NE1/4 SW1/4 S3 T25N R20E near River Mile 6 of the Entiat River (Ardenvoir 7.5' USGS Topographic Quadrangle and Orthoquad aerial – Figures 1 and 2) in Chelan County, Washington on private land.

Cascadia Conservation District is coordinating efforts to convert a surface water diversion to a groundwater well on this property in the lower Entiat River Valley. Funding for this surface water diversion to ground water well project is provided by the America Recovery Reinvestment Act (ARRA) through the Cascadia Conservation District (CCD) from the BOR, who is the lead permitting agency. Though BOR has the lead agency responsibility for cultural resources compliance, Cascadia Conservation District will complete the NHPA Section 106 process on BOR's behalf. Cultural resources reviews are being conducted to determine the impacts to historic properties, if they are present, and to follow NEPA and Section 106 NHPA as required by law.

Due to the planned expenditure of federal funds, cultural resources surveys are being designed to review existing history and prehistory of the area and identify potential areas to be impacted by the planned ground disturbances. Your assistance is needed to determine if physical evidences of cultural resources or traditional cultural properties are present on the Area of Potential Effects (APE) as defined below to comply with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA 36 CFR Part 800). Goals also include identification and analysis of cultural resources that may qualify as historic properties, resolve any adverse effects, and address Native American concerns. In accordance with Section 106 of National Historic Preservation Act (NHPA), your input on these issues is requested as part of the consultation process.

Randy Whitehall plans to drill one ground water well. The present irrigation surface water diversion from the Entiat River will be converted to a groundwater well located above the Ordinary High Water Line (OHWL) near the Entiat River on an easement provided to the Whitehall (Tracy Eisenhard easement property owner). Electrical hookups and irrigation pipelines will connect to the ground water well and include making connections to the existing irrigation pipeline system via the easement.

- Specifically, there will be a staging area for the drilling equipment to the ground water well site, and electrical hook-ups measuring about 100 ft. (33 m) N-S by 30 ft. (9 m) E-W;
- Well depth will be approximately 80 feet (24 m) deep.

- Irrigation pipeline will be connected from the proposed well to an existing mainline system measuring 50' (15 m) east-west x 30' (9 m) north-south x 3' (.9 m) deep.

  The 30' wide dimension for each pipeline is assumed to cover the staging of piping materials and the trackhoe excavator machinery footprint. Trench width will be no more than 2-3' wide.

- Access to the site will be from the Entiat River Road to the well site measuring about 250' long. The depth of disturbance on access roads will be determined by the gross weight of equipment using it; for the drilling operation, a standard Rotary Circulation or Cable Tool Drill Rig will be used and should not disturb more than 1' of ground depth.

Plans are to conduct pedestrian survey, systematic subsurface testing of the well sites and pipeline location APEs in addition to performing thorough background checks.

Construction is planned for Fall 2010. Each of the planned ground disturbing undertakings is relatively small in size and scope and the impacts on the landscape will complement prior disturbances, seek to enhance the quality of the environment and protect water quality. Background research, past planning and implementation efforts, field surveys, and degree of previous disturbances will be used to identify and record cultural resources and determine their potential for national register eligibility.

Comments must be received no later than 30 days from the receipt of this letter.

Sincerely,

Mark Amara
Cultural Resources Specialist

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Steve Kolk, Engineer, Bureau of Reclamation, Wenatchee
Gretchen Fitzgerald, Cultural Resources Coordinator, Bureau of Reclamation, Boise
Dr. Rob Whitlam, State Archaeologist, DAHP, Olympia

May 25, 2010

Dr. Rob Whitlam, State Archaeologist
Department of Archaeology and Historic Preservation
1063 S. Capitol Way, Suite 106
PO Box 48343
Olympia, WA 98504-8343

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Camille Pleasants, THPO, Confederated Tribes of the Colville Reservation, Nespelem
Kate Valdez, THPO, Confederated Tribes and Bands of the Yakama Nation, Toppenish

May 25, 2010

Kate Valdez
Tribal Historic Preservation Officer
Confederated Tribes and Bands of the Yakama Nation
PO Box 151
Toppenish, WA 98948

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