



**US Army Corps
of Engineers** ®
Walla Walla District
BUILDING STRONG®

**COLUMBIA WATER SUPPLY PROJECT
PASCO, WASHINGTON**

PM-EC-2013-0074

ENVIRONMENTAL ASSESSMENT

October 2014

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1.0 INTRODUCTION

This environmental assessment (EA) considers and describes the environmental effects of the City of Pasco's (Pasco) proposal to build a new water intake facility to meet growing public demands for both potable and irrigation water. Part of the proposed facility would be located on federal lands managed by the US Army Corps of Engineers (Corps), Walla Walla District (District) and would require a real estate easement from the Corps. As required by the National Environmental Policy Act (NEPA) of 1969 and subsequent implementing regulations promulgated by the Council on Environmental Quality and the Corps, this EA examines whether issuance of the easement by the Corps constitutes a major Federal action that could significantly affect the quality of the human environment and therefore require an environmental impact statement. The information contained in this EA defines the nature and scope of the potential effects associated with the proposed construction of a new water intake facility and any reasonable alternatives (including the "No Action" alternative).

1.1 Background

Pasco is located in southeastern Washington State near the confluence of the Columbia and Snake Rivers and the Columbia and Yakima Rivers (Figures 1 & 2). It was named after the Peruvian city of Cerro de Pasco and was officially incorporated on September 3, 1891. It became and remains, the county seat of Franklin County. In the early years, Pasco was predominately a railroad town but with the completion of Grand Coulee Dam in 1941, agriculture became a major economic base for the community. The establishment of the Hanford Site in the 1940s brought further development to the area, although the neighboring towns of Richland and Kennewick initially benefitted the most from the Hanford work. Starting in the early 2000s, Pasco began to experience a major transformation not only in population but also in industry (e.g. food processing and wineries) and tourism. Land incorporated on the west end of Pasco has seen major housing and business development to the extent where it is now locally referred to as "West Pasco". During this same time period, Pasco became one of the fastest growing cities in Washington State going from approximately 32,000 people in 2000 to an estimated population of around 65,600 people in 2013.

The rapid growth in Pasco's population over the past decade has created the need for greater water capacity (both municipal and irrigation) to meet city requirements. Presently, Pasco has 2 water intake facilities, both of which are located on the north shore of the Columbia River (Figure 3). Pasco's original intake facility (i.e. Butterfield Water Intake Structure (Butterfield)) was constructed in 1946 and is located at approximately river mile 329.5. It has been rehabilitated over the years but is no longer "state of the art". Although Butterfield is now 68 years old and is no longer the sole source of potable water for Pasco, it still supplies the vast majority of water required by residents. Butterfield produced approximately 19.5 million gallons of the 24 million gallons per day (mgd) peak demand during the 2013 summer. The second facility (i.e. Interstate-182 Intake Structure (I-182)) is located at approximately river mile 336.3 and is in close proximity to the West Pasco Water Treatment Plant (WPWTP) as shown in Figure 3.



Figure 1: Pasco, Washington



Figure 2: Pasco, Washington Vicinity

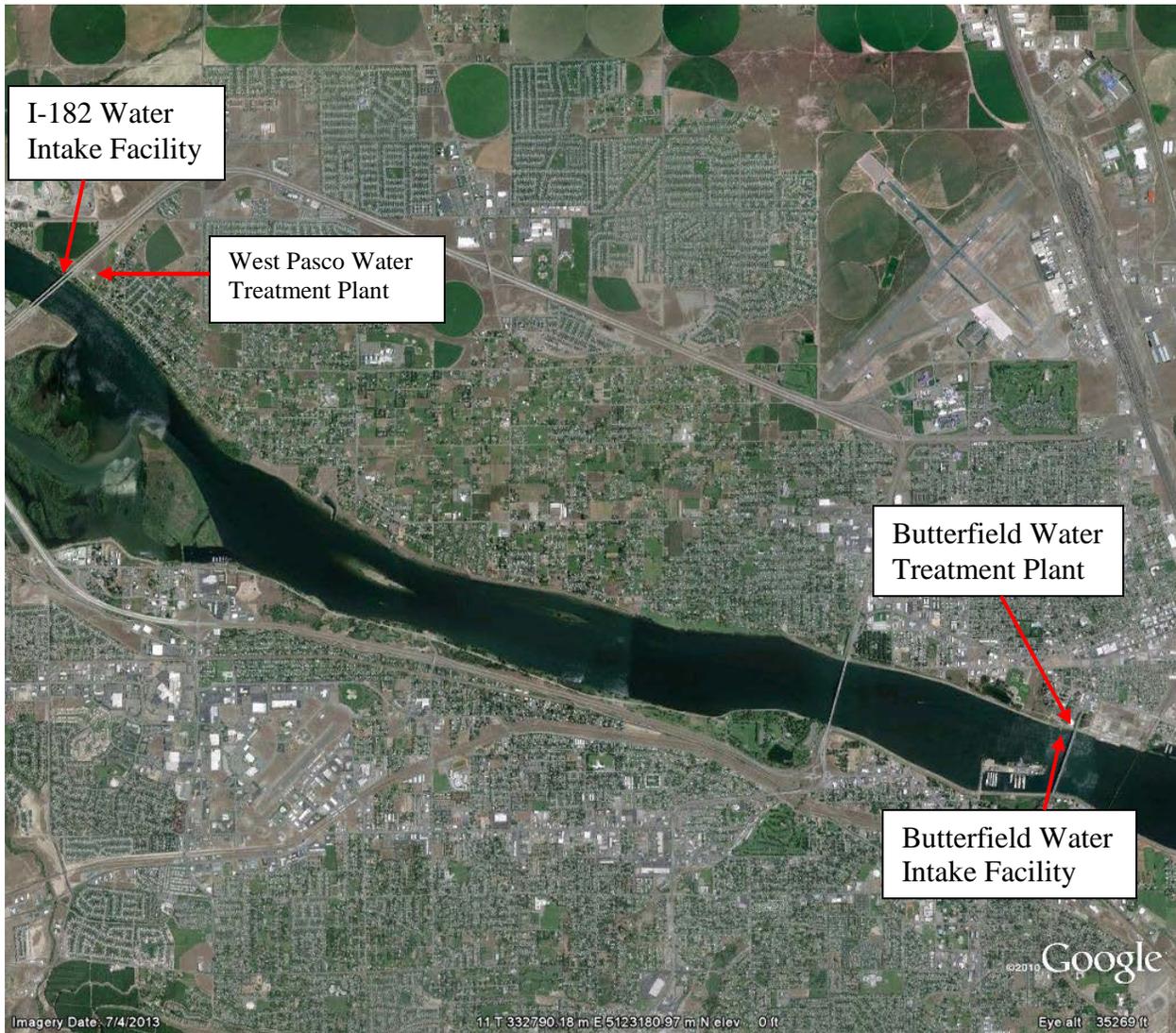


Figure 3: Existing Pasco Water Intake Structures and Processing Facilities

2.0 PURPOSE AND NEED

The purpose of Pasco’s proposal to build a new water intake facility (in part on Corps land) is to secure and deliver a sufficient and reliable water supply to meet current and future municipal and industrial (M & I) and fire suppression needs for the city. An increased water supply is needed as Pasco’s population has more than doubled since 2000. Pasco currently supplies water to approximately 70,000 people within the city limits as well as “pockets” within Franklin County which utilize potable water from the city’s system for M & I uses. Population forecast numbers from Pasco’s Comprehensive Water System Plan (Plan) conservatively project 87,000 residents by 2027 and 100,000 residents by 2030. The Plan supports the requirements of the State of Washington’s 1991 Growth Management Act. Pasco’s existing water intake facilities at

Butterfield and I-182 are not sufficient to meet current or future needs. Both water intake facilities are operating at maximum capacity. Butterfield cannot process more water due to smaller size water lines and the required contact time (of chemicals with water) for disinfecting water before being used. I-182 is also at capacity output due to its small size.

In 2009, Pasco constructed the WPWTP to help meet current and future demands for potable water and fire protection. The WPWTP has a maximum treatment capacity of 25 mgd but is presently processing only around 6 mgd due to the physical restrictions of I-182. This facility does not have the capacity to provide the maximum volume of water that can be processed by the WPWTP (i.e. 25 mgd). Pasco therefore needs additional intake capacity at the WPWTP to ensure an adequate water supply to meet current and future consumption demands as well as fire safety provisions in the event Butterfield suffers a catastrophic failure.

3.0 ALTERNATIVES

This section identifies and describes alternatives for meeting the project purpose and identifies the preferred alternative. Alternatives not meeting the project purpose are not carried forward for further study.

3.1 Alternative 1 – No Action

NEPA requires that each EA or Environmental Impact Statement must include an existing condition or “no action” alternative. This alternative serves as a baseline against which the effects of the other identified alternatives are measured and was therefore carried forward for further consideration.

Under the no action alternative, Pasco would continue to provide M&I water with only the existing Butterfield and I-182 facilities. Having only two water intake facilities would limit business and residential growth potential and/or push what growth that might occur into “pockets” of development within Pasco as opposed to a more uniform development across the entire urban growth area. Such development would go against the intent of the State’s 1991 Growth Management Act and would not address the water supply need.

3.2 Alternative 2 – Construct a New Water Intake Facility (Proposed Action)

Construct a new intake facility to maximize the WPWTP’s potable water capacity and to support ongoing Pasco plans to provide sufficient water service to the community. A new facility would also enable the I-182 facility to be converted to an irrigation only facility that would pump water directly into the municipal irrigation system thereby reducing the need to use potable water for yard/landscape purposes. The increase in raw water intake from the new structure would provide residential and fire flow to an additional 35,000 to 50,000 residents.

The proposed new water intake facility complies with Pasco's existing Plan. Under Washington State's "Growth Management Act of 1991", all cities within the state are to delineate an "urban growth area" (UGA) and develop guidelines for assisting with management of the identified UGA. Goal 12 under Pasco's Plan identifies providing adequate utility services throughout the city's UGA to accommodate population growth. This includes sufficient water and sewer services being available concurrent with development in the UGA. The Plan also calls for more irrigation water being provided to help reduce the use of potable water for yard and landscape maintenance.

Based on the water right issued by Washington's Department of Ecology (Ecology), the designated location of the new intake facility is limited to the southwest quarter of the northwest quarter of Section 18, Township 9 North, Range 30 East in Franklin County (Figure 4). Pasco was able to purchase a partial lot within Ecology's designated water withdrawal area on which the new intake facility would be located (Figure 5). The lot is immediately adjacent to the existing I-182 intake facility.

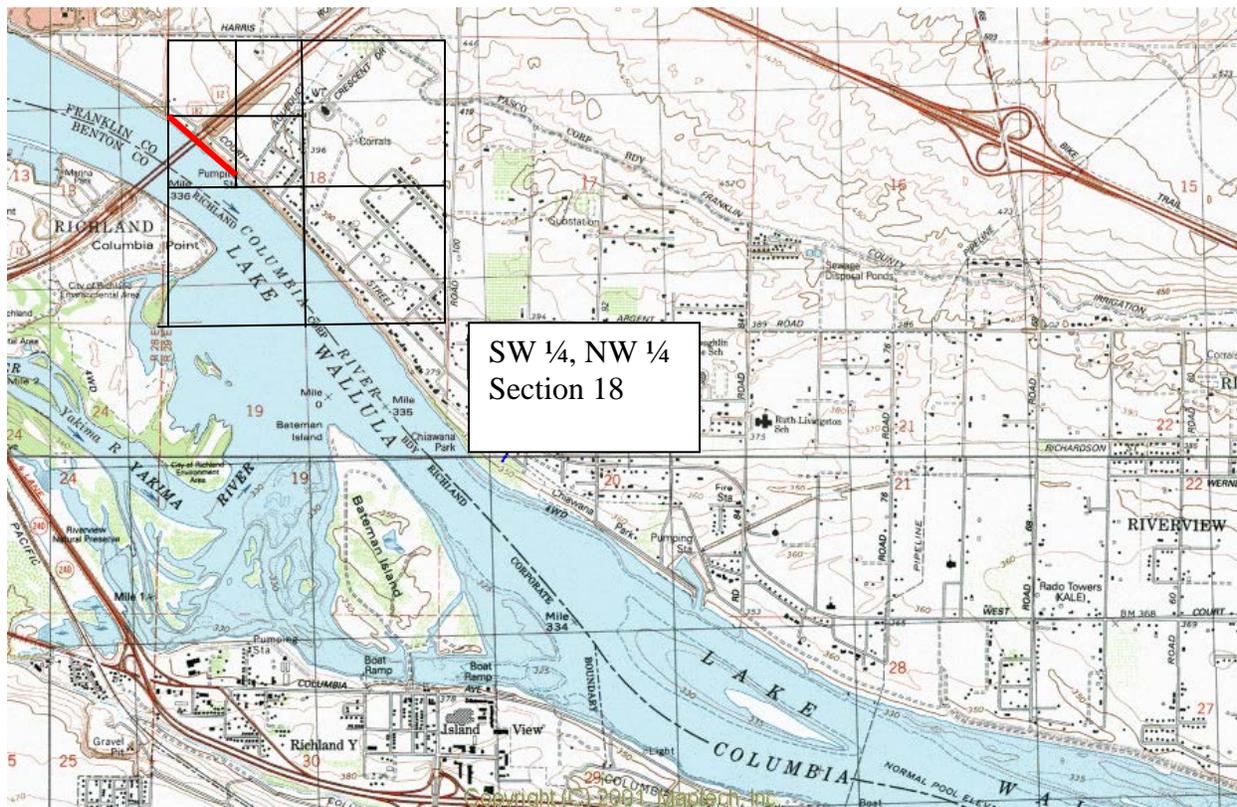


Figure 4: Approved Water Withdrawal Area (red line) for Pasco's New Water Intake Facility

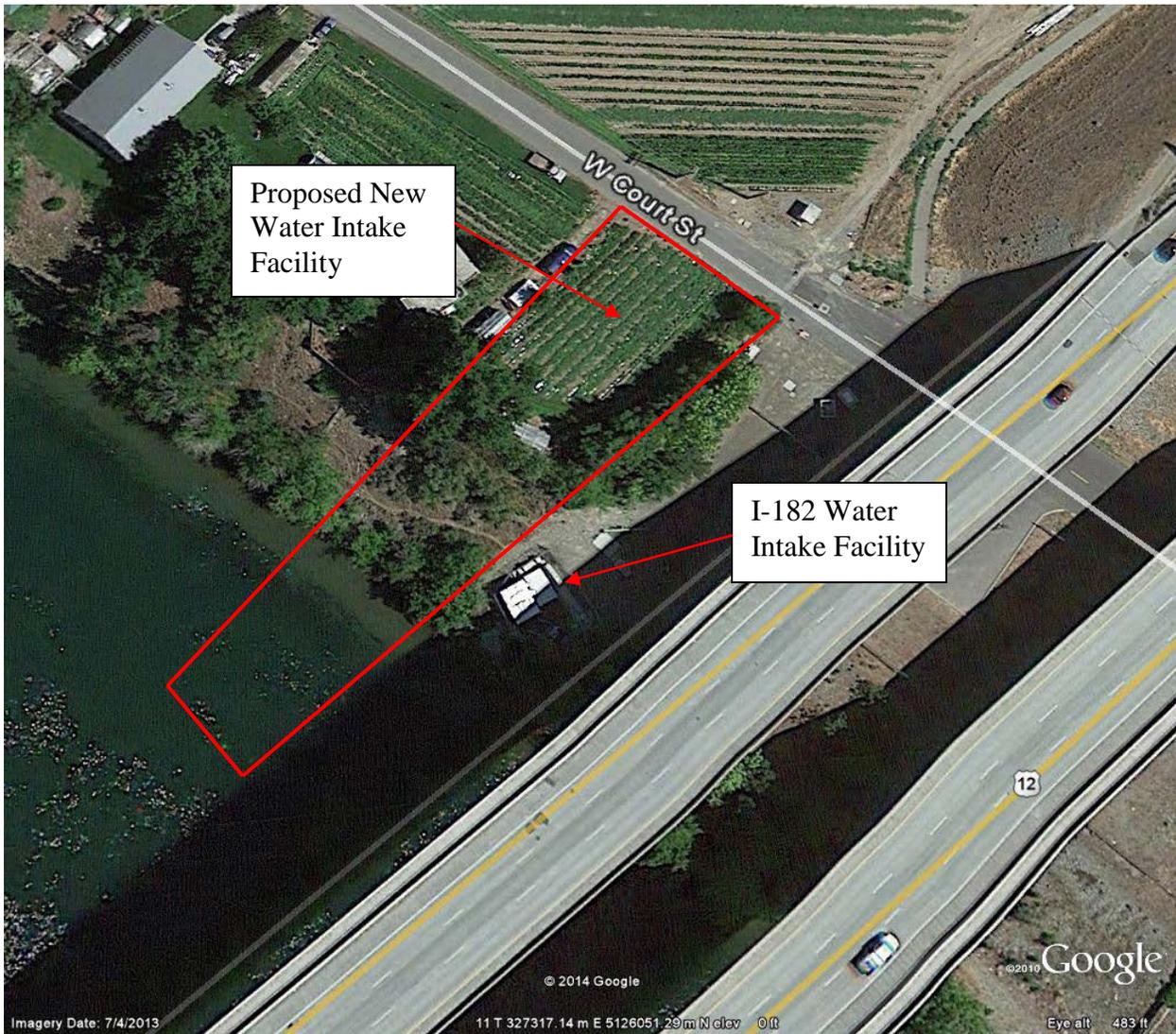


Figure 5: Pasco’s Existing I-182 and Proposed New Water Intake Facilities

The new facility would consist of a circular wet well approximately 30-feet in diameter and extending 85-feet deep; a 36-inch diameter steel intake pipe extending approximately 220 feet from the wet well into the river; and, a T-shaped screened water intake at the end of the pipe (Figure 6). A microtunnel boring machine would be used to install the intake pipe from the base of the wet well out into the river by boring an approximately 36-inch diameter tunnel below ground (Figure7). The T-shaped screens at the end of the intake pipe would be about 3.5-feet in diameter and would be submerged approximately 10 feet below the normal low pool elevation. H-piles would be used to provide foundation support for the intake screens.

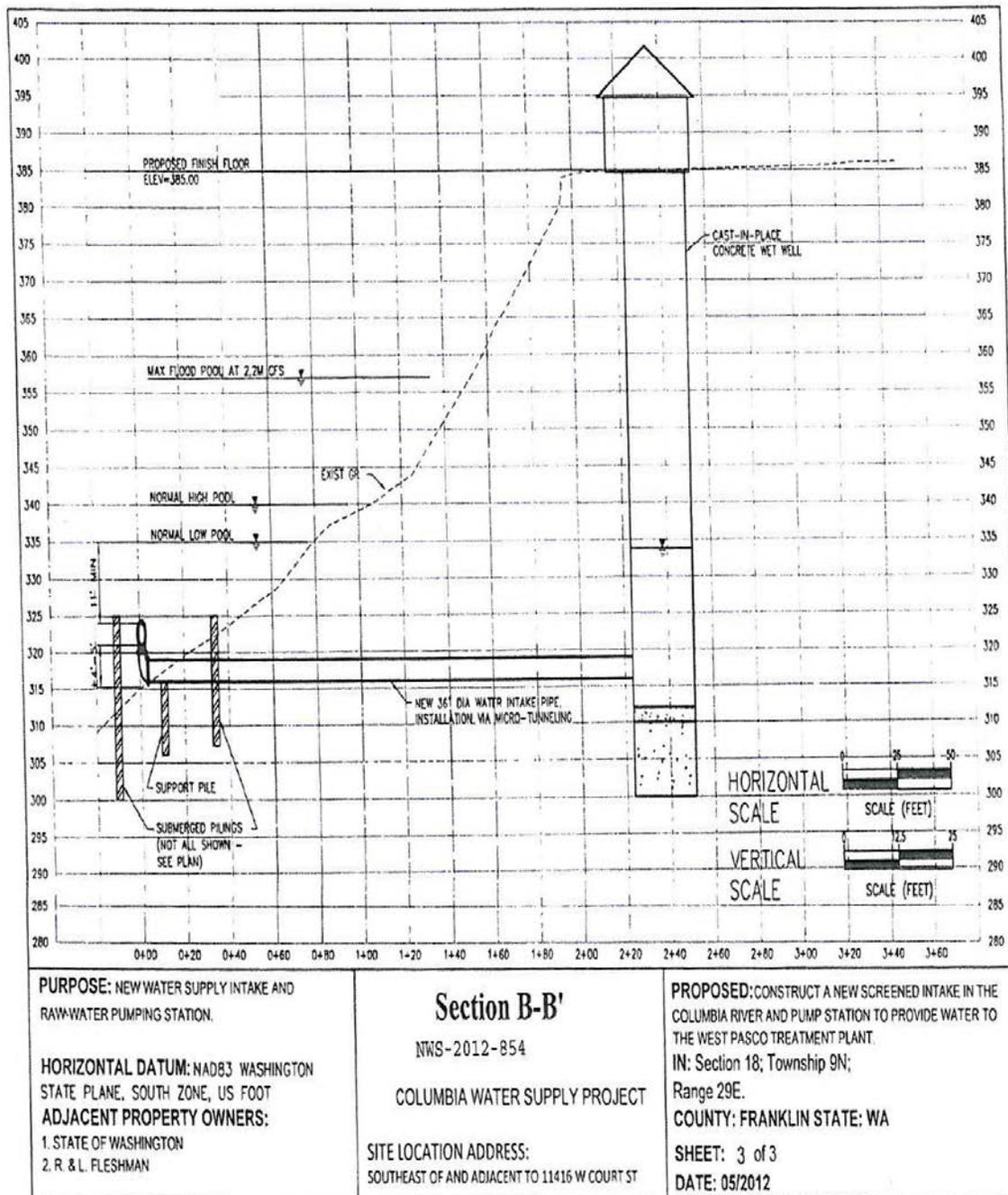


Figure 6: Diagram of New Pasco Water Intake Facility

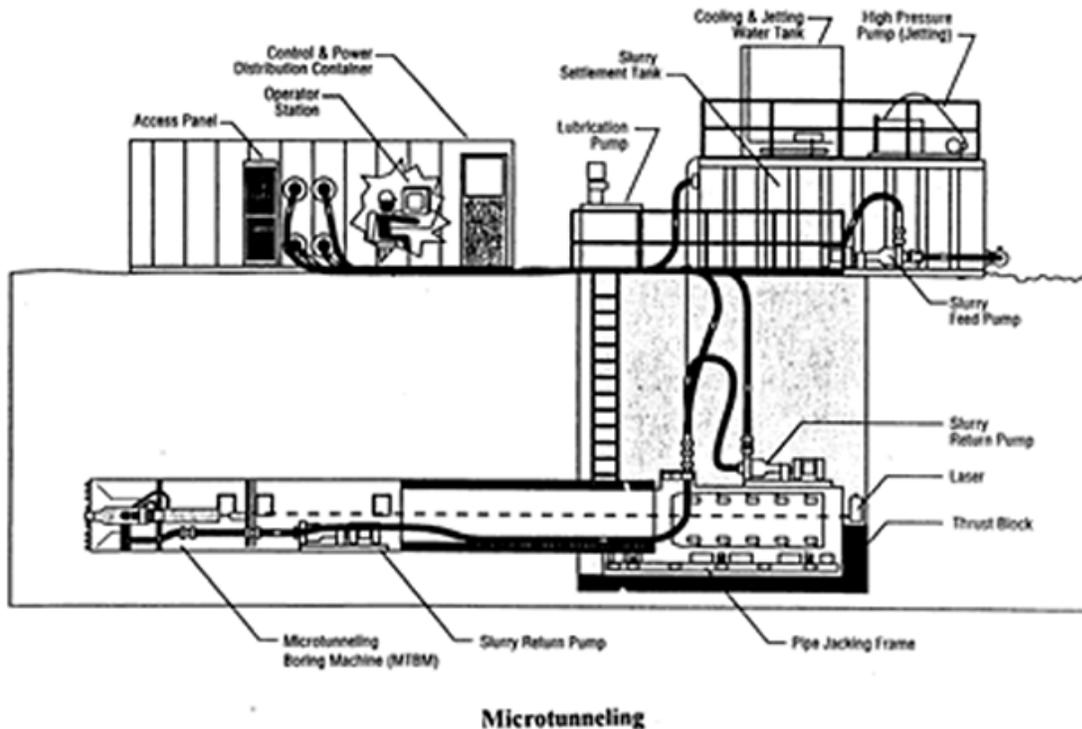


Figure 7: Diagram of a Typical Micro-tunneling System

A barge-mounted, vibratory pile driver would be used to install 9 permanent steel H-piles in the river. The H-piles would serve two purposes. Initially, they would provide bracing to support temporary shoring – i.e. steel sheet piles driven into the riverbed using the vibratory pile driver. The sheet piles (braced by the H-piles) would form a temporary coffer dam in the area where the micro-tunnel boring machine would emerge from the riverbed and would help to contain sediment inside the shoring. It would serve as the location for retrieving/removing the boring machine from the river. The shoring/coffer dam would also be used to facilitate the in-water construction necessary to connect the fish screens to the end of the raw water intake pipe and to install supports beneath the screen. The temporary shoring area would cover about 1,200 square feet.

The second purpose of the H-piles is to support and protect the water intake pipeline fish screens. When the temporary shoring is removed, the H-piles would be cut to a height of approximately 15 feet below the normal water surface elevation, but at an elevation higher than the top of the fish screens to protect both the screens and the short portion of the exposed raw water intake pipe. New stainless steel fish screens which meet current National Marine Fisheries Service (NMFS) design criteria (NMFS 2011) would be attached to the intake pipe located in the river (Figure 8). The design includes an air-burst cleaning system. The fish screens would be supported on the submerged H-piles.



Figure 8: Water Intake Pipeline Fish Screen

A single story, 2,000 square foot pump station building would be constructed over the wet well (Figure 9). The building would have the following 3 separate interior areas:

- Pumps, motors, piping, valves and access to the wet well;
- Electrical, instrumentation and control systems equipment;
- Compressed air equipment.

Under Pasco Municipal Code 25.86.020(11), the proposed intake facility is categorized as an “Unclassified Use” that would require a special permit approval before being located anywhere in the city, regardless of zoning. The current zoning classification for the project site is “Residential Transition”. Because of the zoning, the facility’s pumping and electrical equipment would be housed in a building designed to resemble a residential structure. To aid in creating a residential look, the following architectural features would be included on the building:

- A rectangular addition extending from the main structure with a wall height 2 feet less than the wall height of the main structure;

- A 5/12 pitched roof on the main structure and a 4/12 pitched roof on the addition and also on a dormer with windows attached to the main structure that would be facing West Court Street;
- 10 faux windows sized and located to give the appearance of residential spaces.

The front yard of the pump station building would be extensively landscaped with 11 trees, 638 shrubs and 1338 yarrow plants. The existing arborvitae hedge on the eastern edge of the site would be removed but the hedge on the riverside would remain. In addition to landscaping, a wrought iron fence and parking space for two cars would also be provided. Residential setbacks consistent with current area zoning would be maintained around the building.



Figure 9: Proposed Exterior Design of Pasco's New Pump House Building

In addition to constructing the intake facility and pump station building, the proposed project also includes ancillary features. Approximately 600 linear feet of 30-inch iron pipe would be installed from the intake facility to the WPWTP. A portion of the alignment would be within the

road right-of-way along Court Street and involve excavating a 5.5-foot wide trench to replace an existing 24-inch pipeline. Subsequent improvements would be done along a portion of Court Street and include the installation of curbing, gutters and sidewalk.

3.3 Alternative 3 – Upgrade/Enlarge Existing Water Intake Facilities

Under this alternative, both of Pasco’s existing water intake facilities would be upgraded to meet its current and future water needs (i.e. potable and irrigation). Improvements could include installing larger capacity pumps and water lines along with increasing the holding capacity at the water treatment plants and having a faster turn-around time for water purification treatment. However, upgrades on both facilities would require a temporary shut-down in operation. Even though the Butterfield and I-182 intake facilities are already operating at maximum capacity, they are beginning to fall short of meeting Pasco’s water needs, especially during the summer.

Currently, the Butterfield facility supplies the vast majority of water for the City and its continued operation is critical, especially during summer months when it cannot be shut down. (It produced nearly 80% of the water during the 2013 summer.) While it can potentially be shut down at other times, the maximum period is only for 3 days. Undertaking major upgrades/improvements at Butterfield would require the facility to be shut down for an extended period of time. (Part of the upgrades would include the need to replace all existing Butterfield water lines throughout the City with larger ones.) While it’s unknown at this time how long such an upgrade would take to complete, it’s not unreasonable to assume that at minimum it would be at least a year or more before everything is finished, particularly the replacement of waterlines. The shutdown of Butterfield for upgrade/enlargement would leave only the I-182 facility in operation. By itself, I-182 would fall way short of meeting the City’s water needs and would require the purchasing of additional water from Kennewick, Richland and/or other sources along with the installation of new distribution lines to deliver the water to the City. The cost in money, time and inconvenience to City residents to upgrade/enlarge the Butterfield facility would most likely far exceed the costs associated with constructing a new water intake facility. Because of this situation, the City did not carry Alternative 3 forward for further consideration.

3.4 Preferred Alternative

The alternative best able to meet the identified purpose and need is Alternative 2 - Construct a New Water Intake Facility. Alternative 2 is therefore the preferred alternative.

4.0 AFFECTED ENVIRONMENT and ENVIRONMENTAL IMPACTS

This section identifies and describes the existing natural, cultural and socioeconomic resources which have the potential to affect or to be affected by activities related to the alternatives carried forward for consideration. The affected environment does not include/describe the entire existing environment in which the proposed project occurs. It only focuses on those resources which are relevant to the proposed action. Further, the level of relevance of each identified

resource to the undertaking is not the same. Some resources figure more prominently in an undertaking than others. For purposes of this EA, all relevant resources are identified but not all are discussed in detail. Table 1 provides a list of the relevant resources identified for the City’s Columbia Water Supply Project. Additional discussion of specific resources is provided as needed.

Table 1: Columbia Water Supply Project Relevant Environmental Resources

Resource/Further Discussion	Condition/Status
Biological/YES	<p>The District has determined the proposed alternative “may affect and is likely to adversely affect” Upper Columbia River spring Chinook and steelhead as well as Middle Columbia River steelhead. The project is also “likely to adversely affect” critical habitat for these species based on the area of rearing habitat that would be affected. The Corps has determined the project “may affect, and is likely to adversely affect” bull trout and “may affect, not likely to adversely affect” its designated critical habitat. The Corps has also determined there would be “no effect” on any of the Endangered Species Act (ESA)-listed terrestrial species including pygmy rabbit, gray wolf, Ute ladies’-tresses, yellow-billed cuckoo, and White Bluffs bladderpod. Likewise, there would be “no effect” on Washington ground squirrel which is a candidate species. Finally, the Corps has determined there would be some adverse effects to Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). There would be no take under the Migratory Bird Treaty Act and no disturbance or take under the Bald and Golden Eagle Protection Act. (Detailed information can be found in the project biological assessment.)</p> <p>Aquatic resources could be affected within the in-water work area and by noise generated from pile driving. These effects would not affect aquatic resources at the population level and no long-term impacts are anticipated. Small mammals and birds will likely avoid the work area due to the noise generated by the equipment and pile driving. No lasting impacts are expected.</p> <p>Under the no action alternative, water withdrawals would continue at their current rate. There would be no change in effect from the existing condition. There would be no construction-related effects to ESA-listed fish species and other biological resources.</p>
Cultural Resources/NO	<p>Pasco undertook a cultural resources survey of the proposed project area in 2012. No archaeological or historical properties were identified. The report met federal sufficiency standards and was accepted by the Corps. Based on the information provided in the report, the Corps made a “No Historic Properties Affected” determination for the proposed undertaking and submitted it to the Washington State Historic</p>

	<p>Preservation Office (SHPO). The SHPO concurred with the Corps' determination. The cultural resources survey report and Corps' project determination were also sent to the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, Confederated Tribes of the Colville Reservation and the Wanapum Band for review and comment. The Colville Tribes concurred with the survey findings and determination. The Corps received no other tribal responses. (See Appendix B.)</p> <p>Under the No Action alternative, Pasco would continue to operate and maintain the existing I-182 and Butterfield water intake facilities. No known historic properties are located at either facility and therefore continued operation of both facilities would have no impact on cultural resources.</p>
Water Quality/NO	<p>The section of the Columbia River where the proposed water intake facility would be located, is currently on Washington State's 303(d) list (i.e. polluted waters) for dissolved gas and temperature. Under the No Action Alternative, the 303(d) listing would still continue but there would be no project in-water work that could potentially contribute to the dissolved gas and temperature listing categories.</p> <p>Under the Preferred Alternative, Pasco applied for and received authorization from the US Army Corps of Engineers, Seattle District Regulatory Office to place a water intake line in the Columbia River. Authorization was granted under the terms of Nationwide Permit 12 – Utility Line Activities. In addition to stipulations contained in the permit issued to Pasco by the Seattle District, there are additional conditions/stipulations Pasco would also place on the work to minimize impacts to the Columbia River. The Contractor would abide by all necessary erosion and sediment control best management practices required by Ecology under the Construction Storm Water General Permit (i.e. number WAR-126594) issued to Pasco. Water would be settled and/or filtered using an approved method to remove sand and fine suspended solid soil particles before disposal into any drainage system. Pumped water would not be allowed to discharge directly into the Columbia River without a suspended solids removal treatment system approved by Pasco. This requirement would also apply to the water that would be pumped out of the temporary cofferdam that is set-up in the river. (In the event continuous dewatering is needed during construction, the water would be discharged to upland areas and allowed to infiltrate into the underlying sandy soils or it would be allowed to go to the wastewater treatment plant.) The Contractor would be required to submit plans for the disposal of water pumped from the intake shaft excavation and construction. Further, cofferdams and other protective devices would</p>

	<p>be constructed, maintained and removed using materials and methods which do not produce siltation or other degradation of the water quality of the river or which exceed applicable federal, state and local regulation limits.</p>
Vegetation/NO	<p>The project site has been extensively used in recent years as a garden area for growing produce. It has arborvitae hedges on the east and south property boundaries. These conditions would remain the same under the No Action Alternative.</p> <p>The Preferred Alternative would have clearing and grubbing done to remove all vegetation and debris within the proposed pipeline corridors and on any areas where embankments are to be created or modified. The existing arborvitae hedge on the eastern edge of the project site would be removed but the hedge on the riverside would remain (Figure 5). Other than removing specifically identified trees, shrubs, etc., the Contractor would avoid impacting all other vegetation located within the project area. This would include protecting existing trees and shrubs from cutting, breaking or skinning of roots, the skinning and bruising of bark, or the smothering of roots by stockpiled construction materials, excavated materials or excessive foot or vehicular traffic. Repairable damage to trees would be done by a professional tree surgeon approved by Pasco. Roots and limbs over 1-1/2-inches in diameter which are cut during construction would be provided protection in the form of having the cut faces coated with an emulsified asphalt. The overall intent with the vegetation is to leave all surfaces and plantings not identified for removal/disturbance in substantially the same condition as before the work was done. Contract specifications would call for extensive landscaping of the project area with 11 trees, 638 shrubs and 1338 yarrow plants.</p>
Aesthetics/NO	<p>The current view of the project site is essentially an open garden space with arborvitae hedges on the east and south property boundaries. The No Action Alternative would keep the same setting and view.</p> <p>With the Preferred Alternative, a pump and equipment building would be built on the site and would resemble a residential home, including the roof and siding. Faux windows would also be added to enhance the residential appearance along with a 6-foot high wrought iron fence. The current city zoning classification for the project site is Residential Transition and the intent is to have the project structure housing the pumps and associated equipment blend in with the surrounding buildings. The site would also have extensive landscaping with 11 trees, 638 shrubs, 1338 yarrow plants and landscaping.</p>
Noise/NO	<p>The project site is currently listed as Residential Transitional. It has the I-182 bridge immediately to the east, open fields to the north, the Columbia</p>

	<p>River to the south and homes to the west. The site is located on West Court Street and receives limited traffic at this location. The major and continuous source of noise is the traffic on the I-182 bridge. The No Action Alternative would see no change in current noise conditions.</p> <p>With the Preferred Alternative, there would be a temporary increase in noise and sources of noise. Contract specifications state that all work would be done between 7:00 a.m. and 5:00 p.m. or darkness, whichever is earliest, and only on weekdays (excluding public holidays). No weekend work would be allowed. (If the Contractor wants to work on holidays, a written request must be submitted to the City.) Work would be subject to Pasco's noise ordinance. Construction would not require a large amount of machinery/equipment (i.e. excavator, dump trucks, loader, pile driver, concrete trucks and barge) so actual construction should not produce excessive amounts of noise. Pumps no larger than 250 horsepower would be used to help reduce the noise level. Further, intake and exhaust louvers would be sound reducing and an in-line silencer would be included in the compressor room to reduce the noise coming from the exhaust louvers. Finally, the City's project site is located immediately adjacent to the I-182 bridge that crosses the Columbia River. On average, 56,000 vehicles per day pass by the proposed intake facility location and create a significant and continuous amount of background noise for a large part of the day. Operation of the new intake facility should not add a noticeable increase to the existing noise level generated by highway traffic.</p>
Wetlands/NO	No wetlands are in the project area and would not be impacted by either the No Action or Preferred Alternatives.
Air Quality/NO	<p>The project area currently meets Washington State's ambient air quality standards and would continue to do so under the No Action Alternative.</p> <p>For the Preferred Alternative, there would be only minor effects to air quality given the nature of work to be done and the limited amount of machinery/equipment in use at any time. Contract stipulations state that all areas where dust may be generated shall receive an approved dust-preventative treatment or be routinely watered to prevent dust from occurring. Applicable environmental regulations for dust control would be strictly enforced.</p>
Soils/NO	<p>Sediments in the project area consist of sand, gravel and cobbles. There is also the possibility that boulders could be present in the gravel and cobble layers/deposits. The sand and gravel layers are underlain by very hard silt. Under the No Action Alternative there would be no ground disturbing activities and therefore no resulting impacts to or from sediments.</p> <p>For the Preferred Alternative, it does not appear that subsurface materials</p>

	<p>and conditions would create any major issues/problems during construction. This is based on the City’s engineering consultant undertaking a test boring at the project site along with reviewing Washington State Department of Transportation boring logs for design of the completed I-182 bridge across the Columbia River.</p>
Traffic/NO	<p>The project site currently has limited traffic due to limited development (residential or other) in the area. This condition would continue with the No Action Alternative at least for the immediate future.</p> <p>The Preferred Alternative would see a temporary increase in traffic activity and some impacts on local road access. The Contractor would be directed to maintain access on the existing roads and streets within the project area, keeping them open and in good and safe conditions at all times. The one exception to this would be the potential closing, for a maximum of approximately four weeks near the end of construction, of Court Street along the frontage of Harris Subdivision Lots 10, 9 and 8 which are all beneath the I-182 bridge and do not have any residential or commercial structures. The Contractor would not interrupt traffic beyond what actions were identified and approved in the project Traffic Control Plan. In instances where there would be a disruption of traffic, written notice would be given to affected residents. Further, the Contractor would be required to also erect and maintain appropriate construction signs, warning signs and other control devices as necessary. After project completion, the intake plant would be remotely monitored and therefore require less than a dozen vehicle trips per week to the facility. This would amount to a very minor addition to existing traffic volumes in the immediate residential area based on the Pasco Public Works Department’s study report identifying about 10 vehicle trips per day generated by a single-family residence.</p>
Environmental Justice/NO	<p>Pasco residents currently pay a fixed rate base fee (based upon meter size) plus a usage fee of \$0.70 per 100 cubic feet of water consumption. Water rates would continue to stay at the same level under the No Action Alternative. Any rate increase that might occur would be due to factors other than construction of a new water intake facility – e.g. inflation, higher operation and maintenance costs, etc.</p> <p>Under the Preferred Alternative, water rates would increase as part of the City’s finance plan to pay for the new water intake facility. This rate increase would have an impact on residents, particularly for people in lower/fixed income brackets. If payment of the total project cost were to be covered by an increase in water rates, the same rate increase would be assessed to all residents and would be about 6.63%. However, the City is aware of the potential impacts higher water rates could have on low/fixed income bracket residents and therefore is pursuing grants and low interest rate construction loans to help fund the project. Other funding options</p>

	may also be used to reduce costs to City residents. At this time, it is unknown what the final rate increase for water usage would be but it is anticipated to be much lower than the 6.63% if paid solely by resident water use.
Climate Change/NO	<p>The Council on Environmental Quality (CEQ), in NEPA guidance for documenting effects of climate change and Greenhouse Gas (GHG) emissions, uses 25,000 metric tons of carbon dioxide (CO₂)-equivalent GHG emissions on an annual basis as threshold guidance that agencies should consider as an indicator that a quantitative and qualitative assessment should be provided to decision makers and the public. The EPA provides an average estimate of 4.75 metric tons of CO₂ produced per passenger vehicle (i.e. passenger cars, vans, pickup trucks and sport/utility vehicles) per year. While there would be no specific project under the No Action Alternative that would generate additional GHG, there would continue to be an increase in GHG due to expanding population growth and accompanying development.</p> <p>Under the Preferred Alternative, the type and number of vehicles and equipment needed along with the limited construction time to complete the project would not generate 25,000 metric tons of carbon dioxide equivalent GHG emissions.</p>

4.1 - Biological

The District reviewed the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) threatened and endangered species list for the project area on April 10, 2014. The species are listed in Table 2.

Table 2: Threatened and Endangered Species Listed for the Project Area

Species	Listing Status	Critical Habitat
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)		
Upper Columbia River spring run	Endangered	Yes
steelhead (<i>O. mykiss</i>)		
Upper Columbia River	Threatened	Yes
Middle Columbia River	Threatened	Yes
bull trout (<i>Salvelinus confluentus</i>)		
Columbia River DPS	Threatened	Yes
pygmy rabbit (<i>Brachylagus idahoensis</i>)		
Columbia Basin Distinct Population Segment (DPS)	Endangered	None Designated
Ute ladies'-tresses (<i>Spiranthes diluvialis</i>)		
Contiguous U.S. DPS	Threatened	None Designated
Gray Wolf (<i>Canis lupus</i>)		

Outside NRM DPS	Endangered	None Designated
White Bluffs Bladderpod (<i>Physaria douglasii</i> subsp. <i>tuplashensis</i>)		
Franklin County, Washington	Threatened	Yes
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)		
Franklin County, Washington	Proposed Threatened	None Designated
Washington Ground Squirrel (<i>Urocitellus washingtoni</i>)		
Franklin County, Washington	Candidate	None Designated

The Pasco water intake project area is used only for rearing and as a migration corridor for Upper Columbia River Spring Chinook salmon, Upper Columbia River Steelhead, and Yakima River Middle Columbia River Steelhead. It may be used as migratory and overwintering habitat for bull trout. There are no known pygmy rabbit, Ute ladies'-tresses, gray wolf, White Bluffs bladderpod, yellow-billed Cuckoo or Washington ground squirrel populations located in the Pasco water intake project area. Table 3 summarizes the determinations of effect the proposed Pasco water intake project would have on the threatened and endangered species identified for the project area. (Detailed information can be found in the project biological assessment (Appendix A)).

Table 3: Determinations of Effect for Project Threatened and Endangered Species

Species	Species Determination	Critical Habitat Determination
NMFS		
Upper Columbia River Spring Chinook	May Affect, Likely to Adversely Affect	May Affect, Likely to Adversely Affect
Upper Columbia River Steelhead	May Affect, Likely to Adversely Affect	May Affect, Likely to Adversely Affect
Middle Columbia River Steelhead	May Affect, Likely to Adversely Affect	May Affect, Likely to Adversely Affect
USFWS		
Bull trout	May Affect, Likely to Adversely Affect	Not Likely to Adversely Affect
Pygmy Rabbit	No Effect	None Designated
Ute ladies'-tresses	No Effect	None Designated
Gray Wolf	Delisted DPS	None Designated
White Bluffs Bladderpod	No Effect	No Effect
Washington Ground Squirrel	No Effect	None Designated
Yellow-billed Cuckoo	No Effect	None Designated

4.2 Cumulative Effects

Cumulative effects are the effects of the proposed action added to the effects of other past, present and reasonably foreseeable future actions, regardless of the individual or entity

undertaking them. Because of the nature of the current undertaking, the main focus of this section is on other water withdrawal actions within the project area.

Presently, there are hundreds of water withdrawal locations from both wells and from surface waters within the Tri-Cities area. Likewise, there also hundreds of pending water rights applications for new diversions from the Columbia River. Some of these have been pending for over a decade. While water withdrawn from existing diversion/intake points is part of the existing environmental baseline, its future continued use will have cumulative effects. Unfortunately, sufficient documentation is not available to provide precise water usage information so it is unclear exactly how much water is actually being withdrawn from, or discharged to, the Columbia River in the project area.

In 2011, Ecology and the Quad Cities (i.e. Pasco, Richland, Kennewick and West Richland) reached an agreement that would provide the cities with water at the rate of 165 cubic feet per second and a volume of 86,983 acre feet (ac-ft). The population being served at that time was Pasco 61,000; Kennewick 69,178; Richland 48,850; and West Richland 12,200. The 20 year projected populations are Pasco 83,300; Kennewick 93,306; Richland 62,981; and West Richland 21,164.

Even with the 2011 water right agreement with Ecology, Pasco continues working towards obtaining additional water rights. Its current water system is supplied by surface water withdrawals from the Columbia River. Pasco did have four groundwater wells located in West Pasco near Road 108 which served as an emergency backup supply. However, these emergency backup groundwater wells were abandoned due to their potential unreliability. Pasco has concluded that no other alternative to the Columbia River is currently available as a reliable source of supply for domestic water.

As the service area continues to grow and demand for water increases, Pasco likewise needs to continue expanding treatment capacity. Based on population projections, Pasco would need to plan for a service area population of up to 106,573 by the year 2027. The projected Average Day Demand in Year 2027 is 22.6 MGD and the projected Maximum Day Demand is 47.7 MGD. Based on the population and demand projections, with an additional 13,866 ac-ft/year from the Quad City Water Right and recently secured contracts for an additional 4,500 ac-ft of annual water surface supply from Ecology's Office of the Columbia River, Pasco should have adequate water rights until the Year 2027.

In addition to Pasco's growing water requirements, the other three Quad Cities entities are likewise in a similar situation – growing populations with increasing water needs. Currently, Richland's water supply capacity is 70 mgd that is supplied by 11 wells and the Columbia River. West Richland has 8 groundwater wells, 7 of which produce approximately 6.5 mgd. It also has a water interconnect with Richland's water system that can be used to supply 1 mgd. Kennewick uses a combination of groundwater and surface water sources to meet water demands, particularly during peak summer months. Pasco's current total maximum daily use is about 30 mgd. Kennewick is also testing a pilot project on the feasibility of storing water in an aquifer

during winter months when flows in the river are adequate and demand is lower, and then using the water during the summer when water is limited and demand is up. It could be a way to provide water for future growth while keeping water in the Columbia River during critical times.

In addition to the Quad Cities, there are approximately 40 private water systems in the area drawing from both wells and the river. The majority of these systems serve small commercial businesses and trailer parks in areas which were not served with city water when they were developed. It is expected that these systems would eventually connect to city water as their infrastructures reach the end of their design life or, as a city system expands into their area. Connection of existing water systems to a city’s water utility may require transfer of the owner’s water right to the city if the owner’s intent is to relinquish all use of an existing water source.

Besides domestic water rights, Pasco also has a total of 7,152.8 ac-ft of annual irrigation water rights. There are irrigation Districts/networks in Pasco, Kennewick and Richland – e.g. Franklin County Irrigation District No. 1 (FCID), Columbia Irrigation District (CID), and the Kennewick Irrigation District (KID). Irrigation water is withdrawn by the Quad Cities entities from the Columbia and/or Yakima Rivers. The FCID withdraws about 18,300 acre-feet or 25.3 cubic feet per second (cfs), from the Columbia River for irrigation purposes. It also withdraws water from wells in the area. The FCID has permits or certificates for about 30,000 ac-ft. CID and KID each deliver untreated Yakima River water through open and closed gravity-flow conduits to agricultural and residential customers. Water used for irrigation is sometimes unmetered and restricted only by flow control devices, if at all.

The municipal and irrigation water withdrawals within the Quad Cities area have a small impact on the overall river environment. The approximate total withdrawal amount from each of the cities and the major irrigation suppliers is 577 cfs (415 mgd). The Ecology website shows a total diversionary withdrawal amount of 5,708 (3,689 mgd) which is 11.4 % of the minimum required Columbia River instream flow and 7.1% of the minimum average daily flow. These relatively small diversions could have some impact on migrating salmonids, but the effects would be minimal. Table 4 shows the total percentage of water withdrawal from the Columbia River for Pasco’s new intake facility during the critical water months of April through September.

Table 4: Percent of Total Water Withdrawn by Pasco’s New Intake Facility in Critical Water Months

Date	In-River CFS	In-River MGD	% of flow for the new withdrawal
April 1-15	50,000	32,316	0.077%
April 16-25	70,000	45,242	0.055%
April 26-30	70,000	45,242	0.055%
May 1-31	70,000	45,242	0.055%
June 1-15	70,000	45,242	0.055%
June 16-30	50,000	32,316	0.077%
July 1-15	50,000	32,316	0.077%
July 16-31	50,000	32,316	0.077%
August	50,000	32,316	0.077%
September	50,000	32,316	0.077%

5.0 ENVIRONMENTAL REVIEW REQUIREMENTS.

5.1 Federal Requirements

5.1.1 National Environmental Policy Act

This EA was prepared, and is being circulated to agencies and the public for review and comment, pursuant to requirements of the NEPA. Full compliance with NEPA would be achieved when the Finding of No Significant Impact (FONSI), if one is determined to be appropriate, is signed.

5.1.2 Clean Air Act, As Amended

The project area meets Washington State's ambient air quality standards. There would be only minor effects to air quality given the nature of work to be done and its limited duration. The project area would still meet attainment standards.

5.1.3 Clean Water Act

The City of Pasco applied for and received authorization from the US Army Corps of Engineers, Seattle District Regulatory Office to place a water intake line in the Columbia River. Authorization was granted under the terms of Nationwide Permit 12 – Utility Line Activities.

5.1.4 Endangered Species Act of 1973, As Amended

The Corps determined the proposed project **“may affect and is likely to adversely affect”** Upper Columbia River spring Chinook and steelhead as well as Middle Columbia River steelhead. The project is also **“likely to adversely affect”** critical habitat for these species based on the small area of rearing habitat that would be affected. The Corps has determined the project **“may affect, and is likely to adversely affect”** bull trout and it **“may affect, but is not likely to adversely affect”** bull trout designated critical habitat. The Corps has also determined there would be **“no effect”** on any of the ESA-listed terrestrial species including pygmy rabbit, gray wolf, Ute ladies' -tresses, yellow-billed cuckoo, and White Bluffs bladderpod. Likewise, there would be **“no effect”** on Washington ground squirrel.

The Corps has prepared a biological assessment (BA) (Appendix A) for the proposed action and submitted it to NMFS and USFWS for Section 7 consultation. The Corps expects NMFS and USFWS will agree with the Corps' effects determinations in the BA and issue biological opinions (BiOps) consistent therewith. The results of the ESA (Section 7) consultation would be described in the final, signed FONSI, should it be determined an Environmental Impact Statement is not required for this project, and the BiOps appended thereto.

5.1.5 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) authorizes the USFWS to evaluate the impacts to fish and wildlife species from proposed Federal water resource development projects which could result in the control or modification of a natural stream or body of water that might have effects on the fish and wildlife resources that depend on that body of water or its associated habitats. USFWS has stated that a FWCA report and Planning Aid Letter are not required for this project.

5.1.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703-712, as amended) prohibits the taking of and commerce in migratory birds (live or dead), any parts of migratory birds, their feathers, or nests. “Take” is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof. If the identified arborvitae shrubs in the project area are to be removed between March 15 and August 15, a biologist familiar with migratory bird monitoring techniques would survey the shrubs to avoid any active nests. While potential nesting surveys may be undertaken prior to work commencing, it is likely that migratory birds would avoid the project area during the time work is being performed. Because project work would be done outside migratory birds’ nesting period or if needed, appropriate surveys would be performed, there would be no “take” of birds resulting from the proposed action.

5.1.7 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions, primarily for Native American Tribes. Take under the BGEPA includes both direct taking of individuals and take due to disturbance. Because the proposed action is located so close to the I-182 water intake facility and the I-182 bridge, eagles are not likely to be found near the work site. The Corps has determined there would be no take of eagles as a result of the proposed action.

5.1.8 Magnuson-Stevens Act – Essential Fish Habitat (EFH)

The consultation requirement of section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs Federal agencies to consult with NMFS on all actions, or proposed actions which may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

The proposed action may result in adverse effects on some habitat parameters. These adverse effects are: 1) Short term increases in turbidity and suspended sediments during barrier installations; and 2) Reduction of stream flow by the removal of up to 25 million gallons of water per day. Based on project design, short-term and long-term impacts associated with the project, and proposed conservation measures, the District determined there would be some adverse effects to EFH. NMFS would include recommendations on ways to minimize impacts in their Biological Opinion prepared under Section 7 of the ESA.

5.1.9 National Historic Preservation Act, As Amended

The City of Pasco undertook a cultural resources site survey of the proposed project area in 2012. No archaeological or historical properties were identified either during archival research or field investigations. Based on available information, there is no indication that cultural resources would be impacted by the proposed project and no further cultural resources investigations are recommended. Pasco informed the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, Confederated Tribes of the Colville Reservation and the Wanapum Band of the planned cultural resources work and invited them to submit comments/information (letters dated February 9, 2012). The Colville responded and requested an opportunity to review the information gathered during the background search. The Tribe also requested that a pedestrian survey and shovel probes be done prior to the start of the proposed water intake project.

Pasco's cultural resources report of findings met federal sufficiency standards and was accepted by the Corps. Based on the information provided in the report, the Corps made a "**No Historic Properties Affected**" determination for the proposed undertaking and submitted it to the Washington State Historic Preservation Office (SHPO). The SHPO concurred with the Corps' determination. The cultural resources survey report and Corps' project determination were also sent to the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, Confederated Tribes of the Colville Reservation and the Wanapum Band for review and comment. The Colville Tribes concurred with the survey findings and determination. The Corps received no other tribal responses. (See Appendix B.)

5.1.10 Northwest Electric Power Planning and Conservation Act

The project would not conflict with the requirements of the Act.

5.1.11 Executive Order 11988, Flood Plain Management, May 24, 1977

The project area is not located within the 100-year flood plain.

5.1.12 Executive Order 11990, Protection of Wetlands, May 24, 1977

No wetlands would be impacted by the proposed action.

6.0 COORDINATION.

This EA is being distributed for public and agency review and comment, and is available through the Walla Walla District’s website at <http://www.nww.usace.army.mil/Missions/EnvironmentalCompliance.aspx>. Any comments received, together with the Corps responses, would be appended to the final FONSI, if signed. Table 4 contains the agency/tribal coordination list. Public meetings on the proposed new water intake facility were held during the City annexation process in 2012 and for the Special Permit process in 2013.

Table 4. Coordination List

Individual	Organization
Christine Reichgott	Environmental Protection Agency
Russ MacRae	U.S. Fish and Wildlife Service
Diane Driscoll	National Marine Fisheries Service
Mike Ritter	Washington State Department of Fish and Wildlife
Sarah Gregory	Washington State Department of Fish and Wildlife
Terri Costello	Washington State Department of Ecology
Donna Bunten	Washington State Department of Ecology Shorelands and Environment
Gary Burke	Confederated Tribes of Umatilla Indian Reservation
Eric Quaempts	Confederated Tribes of the Umatilla Indian Reservation
JoDe Goudy	Confederated Tribes and Bands of the Yakama Indian Nation
Phil Rigdon	Confederated Tribes and Bands of the Yakama Nation
Michael Finley	Confederated Tribes of the Colville Reservation
Gary Passmore	Confederated Tribes of the Colville Reservation
Silas Whitman	Nez Perce Tribe
Aaron Miles	Nez Perce Tribe
Rex Buck, Jr.	Wanapum Band
Alyssa Buck	Wanapum Band
Robert Whitlam	Washington State Historic Preservation Office
Dennis Solensky	Ben-Franklin Transit
Rick Dawson	Benton-Franklin Health District
Sally Mohr	Benton-Franklin Council of Governments
Bruce Loranger	Bureau of Reclamation Environmental Review
Mark Teske	Washington State Department of Fish and Wildlife Habitat
Jason Smith	Washington State Department of Transportation, District #5
Paul Gonseth	Washington State Department of Transportation, District #5
Bruce Beauchene	City of Kennewick
Robert Koch	Franklin County Commissioner
Brad Peck	Franklin County Commissioner
Rick Miller	Franklin County Commissioner
Mary Withers	Franklin County Commissioner’s Office

Bob Wyatt	Franklin County PUD
Dave Anderson	Washington State Department of Commerce
Dale Bambrick	National Oceanic and Atmospheric Agency Fisheries
Valerie Smith	Pasco School District
Tim Erkel	U.S. Army Corps of Engineers, Seattle District, Regulatory Office
	Washington Office of Attorney General
	Port of Pasco
Mike Pawlak	Pasco City Engineer

7.0 REFERENCES

- CH2M HILL. 2010. City of Pasco Comprehensive Water System Plan. CH@M HILL. Richland, WA. Revised October 2010.
- City of Pasco, 2014. City of Pasco, Washington Water Resources Management Plan. Final Draft, March 2014.
- City of Pasco, 2013. Pasco City Council Meeting Minutes for August 6, 2013
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- City of Pasco, 2013. Pasco Planning Commission Meeting Minutes for June 20, 2013.
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- City of Pasco, 2013. State Environmental Policy Act Checklist for Columbia Water Supply Project Intake Structure. April 5, 2013.
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- GRI, 2012. Memorandum dated June 29, 2012 to Murray, Smith and Associates, Inc. regarding Preliminary Geotechnical Design Recommendations for the Columbia Water Supply Project (GRI Project No. W1091).
- HDJ Design Group, PLLC, 2013. Columbia Water Supply Project Intake Structure Narrative for City of Pasco Special Permit, April 2013.
- Murray, Smith and Associates, Inc., 2013. Columbia Water Supply Project-Intake Structure 60 Percent Design Memorandum. August 13, 2013.
- U.S. Army Corps of Engineers, Seattle District, 2013. Letter from Seattle Regulatory Branch to Pasco Department of Public Works Authorizing the Proposed Columbia Water Supply Project (Reference: NWS-2012-854); July 25, 2013.

U.S. Army Corps of Engineers, Walla Walla District, 2014. Pasco New Water Intake Structure, McNary Lock and Dam, Biological Assessment, May 2014.

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APPENDIX A

BIOLOGICAL COORDINATION

APPENDIX B

CULTURAL RESOURCES COORDINATION



Alyson Books Ph.D., Director
State Historic Preservation Officer

October 10, 2013

Ms. Alice Roberts
Walla Walla District /Corps of Engineers
201 North Third Avenue
Walla Walla, Washington 99362-1876

Re: West Pasco Water Treatment Plant Intake Project
PM-EC-2013-0074 / 2014-NWW-001
Log No: 100913-15-COE-WW

Dear Ms. Roberts;

Thank you for contacting our department. We have reviewed the professional cultural resources survey report you provided for the proposed West Pasco Water Treatment Plant Intake Project, Franklin County, Washington.

We concur with your Determination of No Historic Properties Affected.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and this office notified.

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

A handwritten signature in black ink, appearing to read 'Rob Whitlam'.

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 586-3080
email: rob.whitlam@dahp.wa.gov

State of Washington • Department of Archaeology & Historic Preservation
P.O. Box 48343 • Olympia, Washington 98504-8343 • (360) 586-3065
www.dahp.wa.gov



From: [Arrow Coyote](#)
To: [Hall, Scott M NWW](#)
On: [Guy Moura](#)
Subject: [EXTERNAL] RE: West Pasco Water Intake Structure
Date: Monday, October 14, 2013 8:48:57 AM

Scott,

After reviewing the report, we concur with a finding of No Historic Properties Affected.

-----Original Message-----

From: Hall, Scott M NWW [<mailto:Scott.M.Hall@usace.army.mil>]
Sent: Wednesday, October 09, 2013 3:24 PM
To: Guy Moura; Arrow Coyote
Subject: West Pasco Water Intake Structure

Guy and Arrow,

Attached is a letter and report seeking your comments regarding the proposal by the City of Pasco to place a new water intake near their West Pasco Water Treatment Plant. The project will require a Corps' real estate easement, and therefore the Corps is requesting comments on the full project.

Thank you.

Scott M. Hall
Archaeologist
US Army Corps of Engineers
Walla Walla District
(509) 527-7278
Scott.M.Hall@usace.army.mil