ARLINGTON WASTEWATER TREAMENT PLANT

Upgrades and Expansion Project
Environmental Report

Prepared for:

City of Arlington

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1.0 PURPOSE AND NEED AND DESCRIPTION OF THE PROJECT

1.1 PURPOSE AND NEED OF PROJECT

The City of Arlington is proposing to upgrade and expand the City's existing Wastewater Treatment Plant (WWTP). The purpose of the project is to provide enhanced wastewater treatment for the City of Arlington service area to meet expected regulatory requirements. Additionally, Phase 1 upgrades and expansion will provide expanded wastewater treatment capacity to serve projected population growth in the service area until the year 2017. Future project phases will provide expanded wastewater treatment capacity to accommodate projected population growth in the service area beyond the year 2025.

The need for the project is driven by the following factors: (1) capacity-related issues in the treatment process; 2) more stringent regulatory requirements as a result of total maximum daily load (TMDL) studies on the Stillaguamish River; and (3) requirements of the state Growth Management Act (GMA). Further information on the need for the project has been documented in the *City of Arlington Comprehensive Plan and Environmental Impact Statement (EIS)* (2005), *City of Arlington Comprehensive Sewerage Plan* (Earth Tech, 1995), *City of Arlington Solids Load Evaluation* (Kennedy/Jenks, 2006), *City of Arlington Comprehensive Sewer System Plan* (RH2 Engineering, 2008), *City of Arlington Mixing Zone Study* (Cosmopolitan Engineering Group, 2008), and the *City of Arlington Wastewater Treatment Plant Upgrades and Expansion Evaluation Engineering Report* (Kennedy/Jenks, 2007), and the *July 14, 2008 Amendment Letter to the Arlington WWTP Engineering Report* (Kennedy/Jenks, 2008).

1.1.1 Background

The City of Arlington currently operates a Wastewater Treatment Plant (WWTP) located in the northern portion of the city, south of the Stillaguamish River (Figure 1). The WWTP was constructed in 1959 and has undergone several expansions and upgrades throughout the years. The last substantial expansion and upgrade was in 1998. The upgrade resulted in a treatment plant with a 2.3 acre footprint with a Sequencing Batch Reactor (SBR) treatment process, complete headworks, and ultraviolet (UV) disinfection. NPDES Permit No. WA-002256-0 was issued for the WWTP discharge in July 1998 (upon completion of the WWTP upgrades) and then reissued in July 2003; it currently has an expiration date of June 30, 2008. Modification #1 to this permit was issued October 2006.

The WWTP currently operates at a secondary treatment capacity of 2.0 million gallons per day (MGD). Treated and disinfected effluent is discharged through a gravity outfall to the Stillaguamish River at River Mile 17.7. The outfall is located in the mainstem of the Stillaguamish River approximately 500 feet below the confluence of the North and South Forks.

The WWTP has generally performed well and has historically been able to meet its permit limits, except for plant-rated influent total suspended solids (TSS). The WWTP has been operating near or above its permitted influent TSS loading on a regular basis. This triggered a requirement from

the Washington State Department of Ecology (Ecology) mandating that WWTP capacity be evaluated. The City performed an evaluation of the WWTP solids loading and submitted a report to Ecology for review, which recommended a higher permit limit for influent solids loading (Kennedy/Jenks, 2006). Ecology approved the recommendation in October 2006 authorizing an influent TSS load of 4,600 pounds per day (lbs/day), which is an increase of 1,500 pounds per day over the existing limit, or give a percentage. The City currently has a pretreatment program to minimize or eliminate impacts from the discharge of industrial and commercial waste on the WWTP and receiving water.

Another area of concern is the ability to process sludge from the SBRs. Sludge storage and dewatering capacity will soon be insufficient to handle projected sludge loading and there is no backup dewatering equipment available at the treatment plant.

In addition to process-related issues at the treatment plant, Ecology has conducted total maximum daily load (TMDL) studies of the Stillaguamish River, which will generate more stringent regulatory requirements under future re-issuances of the National Pollutant Discharge Elimination System (NPDES) permit for the treatment plant. This will require significant upgrades to the treatment plant to achieve a higher level of treatment. Finally, the City's wastewater service area and service population are expected to increase dramatically over the planning horizon (2005 through 2025), primarily due to projected population growth and a large proposed annexation. This population growth is projected and planned for in accordance with the City of Arlington's Comprehensive Land Use Plan. WWTP capacity improvements are needed to address this planned growth.

1.1.2 TMDL, NPDES Permit Requirements

Ecology has recently conducted several TMDL studies of the Stillaguamish River. In March 2004, Ecology completed a temperature TMDL study, which assigned a wasteload allocation (WLA) to the treatment plant for temperature (Ecology, 2006). In July 2004, Ecology completed the Stillaguamish River TMDL study for fecal coliform, dissolved oxygen (DO), pH, mercury, and arsenic, which assigned a WLA to the treatment plant for fecal coliform , but did not assign a WLA for any other constituents (Ecology, 2004). That TMDL study was followed by a Water Cleanup Plan for the Stillaguamish River, which was submitted to the EPA for review and approval in April 2005. In July 2006, Ecology also submitted a Water Quality Improvement Report pertaining to temperature to EPA for review and approval. The reports submitted to EPA summarize steps that will be taken to address water quality issues in the river and its tributaries.

As a result of these TMDL studies, more stringent regulatory requirements are expected under future re-issuances of the NPDES permit. When the upgraded and expanded WWTP is brought on line, Ecology is expected to impose limits on total phosphorus and temperature. In addition, Ecology will be holding constant the current concentration limits for 5-day biochemical oxygen demand (BOD_5) and TSS and reducing limits for fecal coliform. Furthermore, the mixing zone study completed for the project indicates that annual limits for ammonia and seasonal limits for copper and zinc could potentially be imposed to avoid toxicity to aquatic life (Cosmopolitan Engineering Group, 2008).

Meeting these new regulatory requirements will require upgrades to the WWTP to achieve a higher level of treatment. Specifically, upgrades are required to increase capacity for removal of TSS, BOD_5, ammonia, and fecal coliform and to add biological treatment for removal of total phosphorus and total nitrogen.

1.1.3 Wastewater Treatment Plant Flow and Load Projections

The City adopted a Comprehensive Land Use Plan and Environmental Impact Statement (EIS) in December 2005 that projected the expected population growth to the year 2025. Population projections were further refined in the City Comprehensive Sewer System Plan (RH2 Engineering, 2008). Projections of future wastewater flows and loads are based upon these population projections and per capita flow estimates. The Comprehensive Sewer System Plan states that continued growth within the existing urban growth area (UGA) and additional annexations, as expected in the future, will produce wastewater flows that will exceed the capacity of the treatment plant (RH2 Engineering, 2008). As a result, the City must plan for expansion of its current treatment plant to accommodate the flows from the expected growth.

The City limits and the sewer service area encompass approximately 9 square miles. Figure 2 shows the current City limits, UGA, and corresponding sewer service area.

It is estimated that growth within the expanded UGA boundary will increase the wastewater service area population by 10,000 people within the next 10 years. The population projections assume that the City population will grow at the rate of 1,000 people per year between 2006 and 2015. Between 2016 and 2025, the projections assume that the City population will grow at a rate of approximately 550 people per year, reaching a population of 30,500 by 2025.

The projected population and estimated per capita flows were used to predict future treatment plant flows and waste loads, based on historical plant data and peaking factors. The resulting flow and load projections and their associated peaking factors, summarized in Table 1-1, were used to formulate design criteria for evaluating WWTP expansion and upgrade alternatives.

Table 1-1 Wastewater Flow and Load Projections Summary

		PHASE 1	PHASE 2
Design Year	2004	**2017**	2025
Service Area Population	13,173	**22,978**	28,905
Maximum Month Dry Weather Flow (MGD)	1.09	**2.01**	2.56
Average Annual Flow (MGD)	1.16	**2.15**	2.74
Maximum Month Flow (MGD)	1.46	**2.69**	3.43
Peak Day Flow (MGD)	1.86	**3.43**	4.37
Peak Hour Flow (MGD)	4.08	**7.52**	9.58

Source: Evaluation Engineering Report (Kennedy/Jenks, 2007); Comprehensive Sewer Plan (RH2 Engineering, 2008)
Notes:
MGD = million gallons per day
BOD_5 = 5-day biochemical oxygen demand
lbs/day = pounds per day
TKN = total Kjeldahl nitrogen
TSS = total suspended solids

1.1.4 Facilities Plan

This Environmental Report is being prepared to evaluate the preferred treatment alternative and, together with the *Arlington Wastewater Treatment Plant Upgrades and Expansion Evaluation Engineering Report* (Kennedy/Jenks, 2007) and the *July 14, 2008 Amendment Letter to the Arlington WWTP Engineering Report* (Kennedy/Jenks, 2008), constitutes the Facilities Plan for the Phase 1 project.

The *Arlington Wastewater Treatment Plant Upgrades and Expansion Evaluation Engineering Report* (Engineering Report) (Kennedy/Jenks, 2007) has been developed as a result of recommendations established in the Comprehensive Sewer Plan. The purpose of the Engineering Report is to:

- Determine the capacity and level of treatment that will be necessary throughout the Phase 1 planning horizon,
- Identify current capacity and treatment deficiencies associated with the existing treatment plant,
- Examine alternatives for expansion and upgrade of the City's existing treatment plant that will correct identified deficiencies and provide sufficient capacity,
- Make recommendations for proposed improvements to these facilities, and
- Discuss how these improvements will be implemented.

1.1.5 Environmental Review (SERP, SEPA)

Following submission of the Facilities Plan and associated environmental documentation, the City of Arlington plans to apply for funding from the State Water Pollution Control Revolving Fund (SRF) and the Centennial Clean Water Fund to support design and construction. Accordingly, this Environmental Report has been prepared to satisfy requirements of the State Environmental Review Process (SERP, WAC 173-98-100). The SERP is a process required if state and federal funds are used for the planning, design, or construction of wastewater collection and / or treatment facilities. The guidelines for this process and development of this Environmental Report are provided in the December 1998 USDA Rural Utilities Services bulletin *Guide for Preparing the Environmental Report for Water and Waste Projects* (RUS Bulletin 1794A-602) (Howard, personal communication, 2005). In addition to this Environmental Report, a separate Environmental Checklist has been prepared in accordance with the requirements of the State Environmental Policy Act (SEPA, WAC 197-11; 43.21C RCW) (City of Arlington, 2006; 2007).

1.1.6 Project Phasing

The City of Arlington plans to upgrade and expand their WWTP to meet expected regulatory requirements and projected growth through 2025. Treatment plant upgrades and expansion have been phased to provide a more viable project funding package, which has been affected by the current decline in the housing market, and still allow simple modular expansion of WWTP capacity under a second construction phase.

Phase 1 improvements will upgrade the plant's treatment process to produce a higher quality effluent and increase plant capacity to provide treatment for an average maximum month wastewater design flow of 2.69 MGD to meet projected growth through 2017. These Phase 1 improvements are the subject of this Environmental Report.

Under a future Phase 2 expansion, capacity would be expanded to provide treatment for an average maximum month wastewater design flow of 4.0 MGD. It is anticipated that the future Phase 2 project would include equipping of a third biological treatment basin, additional MBR tanks, and replacement of an old mid-section of 15-inch and 16-inch diameter outfall pipe with a new 24-inch pipe so that the entire outfall pipe would be 24 inches. It is anticipated that the future Phase 2 project would also include expansion of the Biosolids Composting Facility as necessary for the sludge produced by the new treatment plant process facilities. Additional environmental review will be conducted for the future phases prior to their implementation as appropriate.

1.2 PROJECT DESCRIPTION

Principal components of the Engineering Report analyzed in this Environmental Report include Phase 1 WWTP upgrades and capacity improvements. The WWTP site is located in the City of Arlington (Figure 1). The existing WWTP site layout is shown on Figure 3 and the proposed WWTP site layout is shown on Figure 4.

1.2.1 Phase 1 Wastewater Treatment Plant Upgrades and Expansion

The design of the upgrades and expansion is discussed in the *Arlington Wastewater Treatment Plant Upgrades and Expansion Evaluation Engineering Report* (Kennedy/Jenks, 2007) and the *July 14, 2008 Amendment Letter to the Arlington WWTP Engineering Report* (Kennedy/Jenks, 2008). Phase 1 WWTP Upgrades and Expansion Project will upgrade and expand the City's existing WWTP to a membrane bioreactor (MBR) facility with aerobic sludge digestion to meet expected regulatory requirements and projected growth through 2017. The upgraded treatment facilities will be based on membrane bioreactor (MBR) technology. The treatment process will consist of passing raw wastewater through fine screens and the MBR system. The facilities will include primary secondary, and tertiary treatment, odor control facilities, and support facilities.

The upgraded and expanded WWTP will be placed within the City's existing 3.91 acre utility site. The remodeled and expanded structures will occupy a site footprint of approximately 47,000 square feet (1.08 acres). All of the proposed improvements can be completed within the current plant site boundary.

The upgraded treatment process will consist of six stages: coarse screening, grit removal, fine screening, biological nutrient removal, MBRs, and disinfection with ultraviolet light. The MBR technology will produce highly treated, high quality water which will meet or exceed all applicable standards. Unit processes requiring additional upgrades and expansion to meet the design criteria are summarized in Table 1-2.

Table 1-2 Proposed Phase 1 Wastewater Treatment Plant Improvements

Unit Process	Upgrades and Expansion
Screening	Expand headworks structure, remove the existing mechanical and manual screens, and install three new 3 mm fine screens (2 duty and 1 standby) to remove debris and protect the downstream membranes.
Grit Removal	Replace the mechanical equipment within the existing grit structure.
Flow Measurement	Remove the existing nested flume to expose the larger existing flume.
Secondary Treatment	Convert SBR tank #2 to a secondary treatment process for biological nutrient removal with MBRs located downstream. Install covers. These improvements will provide hydraulic and waste load capacities meeting the proposed design criteria and biological removal of total nitrogen and phosphorus.
Tertiary Filtration	The MBR membranes will provide tertiary level filtration.
Disinfection	Replace the existing UV reactors with three new higher output, higher capacity reactors that will meet full expanded capacity (4.0 MGD) disinfection requirements for discharge to the Stillaguamish River, and allow the option of producing up to 2.0 MGD of Class A reclaimed water (a future fourth reactor would allow production of 4.0 MGD of Class A reclaimed water).
Effluent Pumping	Although equalized effluent design flows will exceed the current reliable pumping capacity, hydraulic calculations indicate that effluent pumping would no longer be necessary with the improvements. Therefore, no improvements for effluent pumping will occur.
Outfall	Raise existing effluent headbox structure 4 feet, and in a future phase of work, replace old mid-section of 15-inch and 16-inch diameter pipe with new 24-inch pipe so that diameter of the entire outfall will be 24-inch.
WAS Pumping	Rehabilitate and reuse the existing WAS pumps.
Sludge Storage and Stabilization	Convert SBR tank #1 into two aerobic sludge digestion tanks to provide greater storage and sludge stabilization. Install covers.
Sludge Thickening	Remove the existing full scale MBT membrane pilot unit, as a thickening process will no longer be necessary with increased sludge storage and stabilization.
Digested Sludge Pumps	Rehabilitate and reuse the existing double disc diaphragm sludge pumps and purchase a shelf spare.
Sludge Dewatering	Install new rotary fan press units to increase hydraulic and solids loading capacity and allow 24-hour continuous operation (Monday – Friday). The existing belt filter press will serve as a backup.
Secondary Support Building	Make mechanical/electrical equipment modifications to accommodate reuse of the existing blowers and WAS pumps, as well as accommodate improvements to the disinfection and plant water systems.
Solids Handling Building	Expand the Solids Handling Building to accommodate the new rotary fan presses, new polymer feed system, digester blowers, and supporting electrical equipment.
Odor Control	Install odor control for the expanded headworks, expanded Solids Handling Building, and aerobic digesters, and aeration basins.
Laboratory/Office Building	Construct a new Laboratory/Office Building to provide more laboratory space for testing that will be required and more office space for additional staff that will be required.
Equipment Building	Construct a new Equipment Building to provide more space for maintenance and storage of equipment and vehicles necessary for a larger facility.
Electrical Service & Emergency Power	Upsize the electrical service and install a larger emergency generator to power the new and expanded unit processes.

Notes:

mm= millimeter
SBR = sequencing batch reactor
MBR = membrane bioreactor
UV = ultraviolet
WAS = wastewater-activated sludge
MBT = membrane thickener

The treated effluent produced by the upgraded WWTP will be conveyed in an existing pipeline to the existing outfall discharge location in the Stillaguamish River at River Mile 17.7 (located about 500 feet north of the WWTP). The existing outfall will meet Phase 1 capacity requirements without modification. Dewatered sludge will continue to be trucked from the WWTP to the existing Biosolids Composting Facility (BCF) as is currently done. The BCF composts the sludge to general Class A Exceptional Quality biosolids for sale to the public and for municipal use. Sludge that cannot be accommodated by the BCF is hauled away from the WWTP for disposal.

Refer to Section 6 of the *Arlington Wastewater Treatment Plant Upgrades and Expansion Evaluation Engineering Report* (2007) for more details about the proposed WWTP upgrades and expansion.

The facility layout is provided in Figure 3.

1.2.2 Adaptive Management

The City proposes to follow an adaptive management plan outlined within the Engineering Report and continue implementation of the current pretreatment program for further reduction of phosphorus, effluent temperature, and potential control of copper and zinc. The management plan describes steps that will be implemented, as necessary, to maintain regulatory compliance through the ultimate 2025 planning horizon. These steps are summarized below. Additional information, including cost analysis, is provided in the Engineering Report.

1.2.2.1 Adaptive Management for Phosphorous Control

Phosphorus will be removed from wastewater through the proposed biological treatment and membrane filtration. Typically, total phosphorus is removed to concentrations of less than 1 mg/L with a properly designed and well operating biological treatment process. It is not unusual for many biological treatment processes to reduce total phosphorus concentrations to 0.5 mg/L or less. Therefore, it is possible that biological treatment alone could meet the expected NPDES permit limits for total phosphorus, including the requirement for additional removal of total phosphorus below the established baseline value for the critical period (June through September). However, tertiary filtration is also included to enhance removal of phosphorus, increase removal of other constituents, and provide more flexibility in meeting expected and potential future NPDES permit limits. If during design it is determined that the biological treatment process will not provide total phosphorus removal with a sufficient factor of safety compared to the expected NPDES permit limits, then additional steps will be taken to maintain regulatory compliance.

Additional steps beyond biological nutrient removal and tertiary filtration could include the following:

Step 1 – Source Control

Source control will involve one or more of the following elements:

- Inspection
- Public Education
- Modified City Practices
- City Ordinances

By conducting inspections of dischargers with regard to phosphorus, the City may identify customers that discharge a substantial phosphorus load. If such dischargers are found, the City may decide to enforce some removal or mitigation of phosphorus load under its current pretreatment program. Public education would involve the City promoting voluntary source control by informing residential and commercial/industrial customers of alternative products that contain low amounts of phosphorus, or none at all, and suggesting practices that would reduce the release of phosphorus.

The City could modify its practices to reduce the phosphorus load to the WWTP and also reduce the phosphorus load to the Stillaguamish River as a whole. By modifying its practices, the City may encourage others to practice voluntary control. If needed, the City could pass an ordinance banning the sale of certain products that contain phosphorus. If needed, the City could also consider amending the pretreatment ordinance to include limitations on phosphorus, if there are certain commercial/industrial customers that discharge wastewater with unusually high amounts of phosphorus into the collection system.

Step 2 – Nutrient Trading

Nutrient trading involves evaluation of phosphorus loading from the standpoint of the entire drainage basin, rather than focusing on just a single point source, such as the WWTP. As a result, a reduction in phosphorus from non-point sources that have no regulated discharge limits could be applied as a credit to a regulated point source. For instance, if the City were to purchase grazing land adjacent to the Stillaguamish River and restore the natural riparian habitat, thereby removing the phosphorus load associated with runoff from that land, the reduction in phosphorus load to the river could be credited to the regulated point source (i.e., WWTP). Because there is general consensus, supported by the Ecology model of the Stillaguamish basin that was derived during TMDL studies, that an appreciable nutrient load within the river is attributable to non-point sources, nutrient trading may become a viable option to the City under adaptive management. Nutrient trading would allow the WWTP to accept higher loads of influent phosphorus due to growth without exceeding the permit limit or requiring additional investment in treatment. Another potential trading opportunity is reducing phosphorus load in the City's storm water system. The City is pursuing use of constructed wetlands to treat storm water, which would provide some reduction in phosphorus load to the Stillaguamish River. The City is also examining ways to reduce the quantity of stormwater runoff.

Step 3 – Water Reclamation

By producing reclaimed water, the City could divert all or a portion of the effluent to other beneficial uses, thereby reducing phosphorus load to the river. Water reclamation could be particularly helpful at reducing phosphorus load to the river during the critical period (June through September) when the demand for reclaimed water would be the highest. Reclaimed water could be used for agricultural irrigation of surrounding farm land and/or landscape irrigation of golf courses and public parks. Also, reclaimed water could be used to maintain the proposed constructed wetlands for storm water treatment during the critical period (June through September) for phosphorus loading to the river when stormwater flow is lowest. Although no reclaimed water projects other than wetland diversion have been identified, the City will continue to explore potential uses for reclaimed water.

1.2.2.2 Adaptive Management for Temperature

Dynamic modeling results indicate that WWTP effluent temperatures would not exceed the water quality criteria through the planning horizon, based on available temperature data, projected flows, and the assumption that future effluent temperatures would not exceed historical maximums. However, conventional temperature analysis indicates that WWTP effluent temperatures could exceed water quality criteria within about 10 years under Phase 2 upgrades. Due to the amount of data available for the dynamic model and the fact that impacts of the proposed WWTP improvements on effluent temperature are currently unknown, additional flow and temperature monitoring will be conducted to improve reliability of the dynamic model in terms of confirming assumptions regarding the upstream potential temperature and non-alignment of maximum WWTP effluent temperatures and lowest river flows. A minimum of 5 years of additional WWTP and river flow and temperature data will be collected so that the dynamic analysis can be re-run with at least 10 years of data.

Proposed improvements to the WWTP will be designed to minimize temperature rise through the WWTP. This will include considerations such as: 1) adjustable frequency drives on aeration blowers to avoid introducing more air, and subsequently more heat, into the wastewater than is necessary, 2) dose control on the UV disinfection system to control lamp output, and generated heat, based on measured flow and transmissivity, and 3) minimizing heat transfer from the atmosphere by minimizing the surface area of exposed wastewater (e.g., consider deeper tanks and eliminating flow equalization). However, it is possible that additional steps may need to be taken to mitigate effluent temperature.

The following paragraphs identify and prioritize additional steps under the adaptive management plan.

Step 1 – Covers and Shading

Covers will be installed over unit process tanks to provide shading or to completely enclose the structure in combination with odor control. Although covers may block solar radiation, they may also trap heat, so their use with respect to temperature mitigation must be carefully considered. Additionally, placement of structures will be analyzed for opportunities to shade open tanks

using other structures or vegetation and limit exposure to direct sunlight, particularly during the hottest period of the day.

Step 2 – Source Control

Source control for temperature could involve one or both of the following elements:

- Inspection
- Public Education
- City Ordinances

By conducting inspections of dischargers specifically with regard to temperature, the City may identify customers that discharge wastewater at high temperatures. If such users are found, the City may decide to enforce some form of mitigation and/or include pretreatment reporting under its current pretreatment program.

Public education would involve the City promoting voluntary source control by suggesting practices (e.g., lowering the temperature setting on hot water heaters) to residential and commercial/industrial customers that would reduce the temperature of the influent wastewater, with the goal of reducing the effluent temperature. The City could consider amending the pretreatment ordinance to include limitations on temperature, if there are certain commercial/industrial customers that discharge wastewater with unusually high temperatures into the collection system.

Step 3 – Water Reclamation

As discussed previously, production and use of reclaimed water could reduce or eliminate the discharge of effluent to the Stillaguamish River. With a lower effluent flow, a higher effluent temperature would be allowed, while still meeting the water quality criteria. Water reclamation could be particularly helpful during the critical period (June through September) when effluent temperatures are highest and the demand for reclaimed water would be highest.

Step 4 – Riparian Restoration

Although it is uncertain whether the WWTP would receive any direct benefit as a point source discharger, the City, as good stewards of the environment, is considering ways in which it can facilitate and promote restoration of the riparian zone in locations where it has been cleared of trees, shrubs, and other vegetation. This vegetation is critical to shading the river to keep the overall river temperature down and providing cool spots in the river as a refuge for aquatic life. This vegetation also acts as a sink to capture some of the runoff from adjacent lands and as a filter to remove some nutrients from the runoff.

1.2.2.3 Adaptive Management for Copper and Zinc Removal

The City currently adds chemicals for corrosion control to its water supply. This has resulted in a significant decrease in copper received at the WWTP. There are a number of additional

options the City is pursuing for the further reduction of these metals. The additional options, in order of priority, are as follows:

- Use of Predicted Actual Dilution Ratios
- Additional Effluent Sampling for Copper and Zinc
- Source Control
- Adding Hardness to the Effluent
- Water Effects Ratio (WER) Study

The City will consult with Ecology to determine if using actual predicted dilution ratios from hydrodynamic modeling is appropriate, which shows no reasonable potential to exceed water quality standards for copper and zinc within the 20 year planning horizon, rather than the 2.5 percent rule, which shows reasonable potential to exceed acute water quality standards for copper and zinc.

The City conducted bimonthly sampling of effluent from December 2006 through May 2008 and tested each sample for dissolved and total recoverable copper and zinc using clean sampling techniques. In addition to this data , the City will have 1 year of data for effluent copper and zinc to identify long-term and seasonal trends. Dissolved values will be indicative of effluent total recoverable values following implementation of MBR technology. Membrane filters will nearly eliminate undissolved effluent metals by exclusion of total suspended solids from the effluent.

It is recommended that the City perform a user survey to determine sources of zinc and implement pretreatment requirements for zinc, as necessary. Source reduction of copper will be difficult to achieve since the raw water supply is low in copper, and the water utility has already implemented a corrosion control program. The source of copper at the WWTP is believed to be widespread in the collection system from building plumbing and fixtures and not from industrial contributions.

Addition of alkalinity will be required to ensure sufficient buffering of pH for process control, since a considerable amount of alkalinity will be consumed in the secondary biological treatment and aerobic digestion processes. Higher levels of alkalinity in the effluent will increase the formation of metal precipitates, thereby reducing the amount of metal in the dissolved form, reducing the toxicity, and decreasing the overall discharge of metals (it is expected that the membrane filters would remove much of the metal precipitates). Reducing the toxicity and overall concentration of metals discharge would mean that a higher concentration of metals could be received at the WWTP without exceeding the water quality criteria. The City could also consider adding alkalinity in excess of the amount required to buffer the pH to further mitigate the toxicity and removal of copper and zinc in the effluent.

A WER study could be conducted to establish site-specific adjustments that account for the difference between the toxicity of a metal in laboratory dilution water and its toxicity in the actual receiving water. Prior to conducting a WER study, the City must have examined other options for reducing the concentration of metals in the effluent such as source control and treatment. If any technology-based option meets the cost test for reasonableness, that option

must be implemented before Ecology will agree to a WER study. In addition, the City would need to submit a study plan for approval by Ecology. Before pursuing this option, a preliminary investigation is advised to determine if there is potential for a real advantage in conducting a WER study.

2.0 ALTERNATIVES ANALYSIS / COST EFFECTIVENESS ANALYSIS

Information on alternatives evaluated for the WWTP upgrades provided below is based on planning level cost estimates for capital cost and present worth of alternatives discussed in the Engineering Report. Cost estimates prepared for each treatment alternative include capacity costs, annual operation and maintenance costs for a 20-year period, 20-year life cycle costs. Estimated costs were only one factor contributing to the selection of the preferred alternative. The cost estimates were weighed against non-monetary factors as well. These non-monetary factors include process performance, complexity, flexibility, space requirements and associated buildout capacity, and potential to create odors.

Additional information on the evaluation of alternatives is provided in Section 6 of the *Arlington Wastewater Treatment Plant Upgrades and Expansion Evaluation Engineering Report* (2007).

2.1 SECONDARY TREATMENT ALTERNATIVES

Five secondary treatment alternatives were initially identified as being feasible for application at the WWTP. The evaluation of these alternatives was based on both estimated life cycle cost and non-monetary considerations, including process performance, complexity, flexibility, use of space and associated buildout capacity, and potential for odors. This field of potential alternatives was further narrowed by determining the appropriate type of digestion for the facility (aerobic vs. anaerobic). Aerobic digestion was found to have several advantages over anaerobic digestion. Aerobic digestion is a simpler process, less sensitive to changes in sludge characteristics, generally has less potential for odors, tends to work more favorably with WWTPs performing nutrient removal, is safer, and appears to have a lower capital and annual operations and maintenance (O&M) costs. For these reasons, aerobic digestion was recommended for the WWTP upgrades and expansion. As a result, three alternatives for secondary treatment were selected for detailed evaluation:

- Sequencing Batch Reactor (SBR)
- Selector-Activated Sludge with Tertiary Treatment (SAS)
- Selector-Activated Sludge with Membrane Bioreactor (MBR)

Estimated life cycle costs for SBR Alternative, SAS Alternative, and MBR Alternative are shown in Table 2-1. For this conceptual level evaluation, the projected 2025 labor, power, chemical, and maintenance requirements were conservatively applied over the entire 20-year planning period.

Table 2-1 Treatment Process Alternatives Estimated Life Cycle Costs

Costs[(a)]	Treatment Process Alternative		
	SBRs	**SAS**	**MBR**
Capital Cost	$28,730,000	$27,130,000	$29,340,000
Annual O&M Cost	$1,073,000	$1,023,000	$1,127,000
20-Year Life Cycle Cost	$50,190,000	$47,590,000	$51,880,000

Notes:

(a) Does not include costs associated with the Biosolids Composting Facility.
SBRs = sequencing batch reactors
SAS = selector-activated sludge
MBR = membrane bioreactor

Compared to MBRs, SBRs are expected to be more complex, are limited by site constraints, and do not provide a substantial cost savings. Although it appears that an SAS facility with tertiary filtration and aerobic digestion could be slightly less expensive, the rough level of accuracy of the conceptual level estimates makes the comparative costs essentially equivalent. Furthermore, membranes require a smaller footprint, typically produce a higher quality effluent compared to media filtration, require fewer unit processes (less demand on operations staff), and represent best available technology for cost-effective treatment of municipal wastewater. A smaller footprint allows for greater expansion in the future within the existing WWTP site. A higher quality effluent improves the efficiency of UV disinfection and provides greater flexibility for meeting future discharge limits. Using best available technology is consistent with the City's commitment to being good stewards of the environment. Based on the conceptual cost estimates and considerations of performance, complexity, and space; it was determined the WWTP should be upgraded and expanded to an MBR facility with aerobic digestion. This alternative is evaluated in this document.

2.2 NO ACTION ALTERNATIVE

The No Action Alternatives is presented to identify the possible implications if the City elects not to, or is unable to, implement the recommended WWTP upgrades and expansion. The implications of this option may include:

- Regulatory violations due to inability to meet NPDES permit requirements.
- Inability to produce reclaimed water, limiting future ability to provide Class A reclaimed water for beneficial use and reduced river discharge.
- Inability to adequately stabilize biosolids, which would prevent beneficial use via land application.
- Population growth restrictions due to the inability to treat additional wastewater flow and load.

Ultimately, the No Action Alternative would result in a significant net negative impact on the environment compared to the recommended approach and is not further evaluated in this report.

3.0 AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION

3.1 LAND USE/IMPORTANT FARMLAND/FORMALLY CLASSIFIED LANDS

This section discusses general land use, important farmland, and formally classified lands in the proposed project area. Shoreline designations under the City of Arlington Shoreline Master Programs are discussed in Section 3.2, Floodplains and Shorelines.

3.1.1 Affected Environment

3.1.1.1 General Land Use

Land use within the Arlington city limits is predominantly residential, with commercial and industrial, park and open space area, community facilities, and various vacant lots. Land use is governed by the Arlington Comprehensive Plan and the Arlington Municipal Zoning Code. The Zoning Code describes the possible land use, including density limits and requirements for roads, and other factors related to development or redevelopment of land.

3.1.1.2 Existing and Adjacent Land Use

The WWTP is located at the northern end of the City of Arlington near the Stillaguamish River at the intersection of North West Avenue and West Haller Avenue. The WWTP is bordered by State Route (SR)-9 to the west, West Burke Avenue/SR-530 to the south, and the City Water Treatment Facility and North West Avenue to the east. The City currently owns all but one of the properties adjacent to the north side of the WWTP. The remaining property is a private residence. A public park (Haller Park) is located north of the WWTP adjacent to the river. Further to the south across West Burke Avenue/SR-530 and to the east across North West Avenue is a mix of commercial and residential properties.

The site is currently developed as the City of Arlington's Utility Site and contains the City's existing WWTP and Water Treatment Plant. Structures on the site include an administration building, lab/office building, SBR tanks, post equalization basin, sludge dewatering building, sludge storage tanks, public works buildings, and water treatment plant.

The City of Arlington Comprehensive Plan and Zoning designation for the site and surrounding properties is Existing Public Use Land (P/SP). The Existing Public Use Land designation is intended to accommodate public and semi-public uses, such as schools, government services and facilities, public utilities, community facilities, and parks on publicly-owned land. The WWTP is considered a permitted use under this designation (Kelly, personal communication, 2008).

3.1.1.3 Important Farmland / Formally Classified Lands

There are no important farmland or formally classified lands located on the WWTP site and no additional land will be purchased. The project will also not affect any areas of prime forest land or prime rangeland.

3.1.2 Environmental Consequences

The City of Arlington Comprehensive Plan and Zoning designation for the site and surrounding properties is Existing Public Use Land (P/SP). Upgrades and expansion would occur on a site that is currently developed as the City's Utility Site, housing the City's existing WWTP and Water Treatment Facility. No businesses would need to be relocated and no off-site structures would be demolished as a result of the proposed upgrades and expansion. The wastewater treatment facility is considered a permitted use under the P/SP zoning designation, but the upgrades and expansion project will require a Land Use Permit from the due to the amount of structure expansion (Kelly, personal communication, 2008).

3.1.3 Mitigation

No mitigation measures have been developed at this time. Development of the proposed upgrades and expansion would comply with the City of Arlington permit process. Any mitigation measures identified during that process as conditions of the permit would be implemented.

3.2 FLOODPLAINS AND SHORELINES

3.2.1 Affected Environment

A floodplain is an area susceptible to being inundated from any source, usually a flat land area in the bottom of a river valley or adjacent to tidal lands. The Federal Emergency Management Agency (FEMA) discourages construction within a floodplain because of the potential to endanger both lives and property. Altering a floodplain by placing fill or excavating within it can change the natural floodplain boundary, causing flood impacts to properties otherwise outside of the floodplain. The 100-year floodplain boundaries within the study area were inventoried in accordance with Executive Order 12148, which provides floodplain protection guidance for federal agencies.

Flood hazard areas are floodplain areas subject to a one percent or greater chance of flooding in any given year. This includes areas identified as potential or historic flood areas based on "Zone A" flood areas on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps.

The City is located at the confluence of the North and South Forks of the Stillaguamish River, both of which have mapped floodplain areas. According to the FEMA maps, no part of the WWTP upgrades or expansion will be in the flood hazard area (100-year floodplain) of the Stillaguamish River, as defined by the Flood Insurance Rate Map for Arlington, Washington (Map 53061C0384 E) (FEMA, 1999). Figure 4 shows the impacts of flooding due to the projected one percent or greater chance flood zone (100-year flood elevation) and 1 to 0.2 percent chance flood zone (100- to 500-year flood elevations). The floodplain areas show that the WWTP is protected from the 1 percent chance (100-year flood), but may experience minor flooding during the occurrence of a less frequent flood event (e.g. 500-year flood). The 500-year floodplain lies outside the City's jurisdiction for floodplain-related permits.

The WWTP site is located outside of the City of Arlington shoreline management jurisdiction.

3.2.2 Environmental Consequences

No impacts to local floodplains would occur.

3.2.3 Mitigation

No impacts to floodplains or adjacent floodplain properties are anticipated as a result of the WWTP upgrades and expansion. Accordingly, no mitigation measures are recommended.

3.3 WATER QUALITY

The following section describes surface water quality and general ground water conditions in the project area. Potential impacts resulting from the proposed project, as well as identified mitigation measures are also described.

3.3.1 Affected Environment

3.3.1.1 Drainage Basin

The project area lies within the Stillaguamish River basin, and is located immediately below the confluence of the North and South Forks of the Stillaguamish River near the left (south) bank. The Stillaguamish River drains an area over 700 square miles in western Washington, discharging to the Puget Sound near the town of Stanwood. The project area is located in Water Resource Inventory Area (WRIA) 5. Major tributaries to the Stillaguamish River in the project vicinity include the Boulder River and Deer Creek. The City of Arlington operates a wastewater treatment plant that discharges secondary treated, disinfected effluent that is discharged into the Stillaguamish River at River Mile 17.7, approximately 500 feet below the confluence of the North and South Forks.

3.3.1.2 Water Quality Standards

The Arlington outfall discharges to a section of the Stillaguamish River classified for uses including spawning/rearing aquatic uses; primary contact recreation; domestic, industrial, agricultural and stock water supply; wildlife habitat, harvesting, commerce/navigation, boating, and aesthetic enjoyment (Chapter 173-201A WAC, 2006 Rule). Numeric aquatic life criteria for this class of river are summarized in Table 3-1.

Table 3-1 Washington State Water Quality Standards for Stillaguamish River from Mouth to North and South Forks (River Mile 17.8)(WAC 173-201[A] 2006 Rule)

Numeric Water Quality Criteria
Temperature: When the water body's temperature is warmer than [17.5°C Highest 7-DADMax (63.5°F)] or within 0.3°C of the criteria and that condition is due to natural conditions, then human actions considered cumulatively may not cause the 7-DADMax temperature of that water body to increase more than 0.3°C. This segment of the Stillaguamish River has additional seasonal limitations for spawning and incubation protection. Between October 1 and May 15, the temperature criteria is 13°C highest 7-DADMax. The remainder of the year, May 16 through September 30, the 17.5°C criteria would apply. When the natural condition of the water is cooler than the criteria, the allowable rate of warming up to, but not exceeding, the numeric criteria from human actions is restricted as follows: • Incremental temperature increases resulting from individual point source activities must not, at any time, exceed 28/(T+7) as measured at the edge of a mixing zone boundary (where "T" represents the background temperature as measured at a point or points unaffected by the discharge and representative of the highest ambient water temperature in the vicinity of the discharge).
Dissolved Oxygen: When the water body's DO is lower than [8.0 mg/L lowest 1-Day Minimum] or within 0.2 mg/L of the criteria and that condition is due to natural conditions, then human actions considered cumulatively may not cause the DO of that water body to decrease more than 0.2 mg/L.
pH: pH must be within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.
Turbidity: Turbidity must not exceed: • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Fecal Coliform Bacteria: For [Primary Contact Recreation] Fecal Coliform levels must not exceed a geometric mean value of 100 colonies/100 mL, and not have more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies/100 mL.
Toxic Substances: Table 240(3) WAC 173-201(A) lists Toxic Substances Criteria

The Environmental Protection Agency (USEPA) approved Washington's 2003 water quality standards (referred to as the 2003 Rule) with 2006 revisions (referred to as the 2006 Rule) on February 11, 2008. The *Mixing Zone Study* conducted for the project used the 2003 rules (Cosmopolitan Engineering Group, 2006). The main difference between the two rules, with respect to this project, is the seasonal limitations related to temperature. The segment of the Stillaguamish River that contains the Arlington outfall has additional seasonal temperature restrictions under the approved 2006 Rule. Between October 1 and May 15 the maximum 7-DADMax[1] temperature criteria is 13°C for spawning and incubation protection. The remainder of the year, the 17.5°C 7-DADMax temperature criteria would apply. Aquatic life water quality standards include toxicant criteria promulgated in WAC 173-201(A)- 240. Toxicant effluent limitations are imposed when there is a "reasonable potential (RP)" to exceed water quality standards. This *Mixing Zone Study* evaluates the RP for ammonia and metals. The procedure for determining RP for toxicants is summarized in the *Mixing Zone Study* (Cosmopolitan Engineering Group, 2006).

[1] The 7-DADMax temperature is the arithmetic average of seven consecutive days maximum temperature

3.3.1.3 Stillaguamish River Water Quality

Ecology is responsible for identifying waters that do not meet state water quality standards and for developing a plan to limit pollutant loads by adopting Total Maximum Daily Loads (TMDLs). This responsibility is derived from Section 303(d) of the Clean Water Act.

In March 2004, Ecology completed a temperature TMDL study for the Stillaguamish River, which assigned a wasteload allocation (WLA) to the treatment plant for temperature (Ecology, 2006). In July 2004, Ecology completed the Stillaguamish River TMDL study for fecal coliform, dissolved oxygen (DO), pH, mercury, and arsenic. The study assigned a WLA for fecal coliform to the treatment plant, but did not assign a WLA for any other constituents (Ecology, 2004). That TMDL study was followed by a Water Cleanup Plan for the Stillaguamish River, which was submitted to the EPA for review and approval in April 2005. In July 2006, Ecology also submitted a Water Quality Improvement Report pertaining to temperature to EPA for review and approval. In June 2007, Ecology developed a Water Quality Implementation Plan to address the parameters of concern. As mentioned above, the Arlington treatment plant incorporated WLAs for temperature and fecal coliform bacteria. Arsenic and mercury levels in the river are higher than levels set in state water quality standards; however, the elevated arsenic levels are a natural condition in the watershed (Ecology, 2007). As a result, arsenic is not addressed in the Implementation Plan. Ecology believes that the key to controlling mercury is to control suspended solids (Ecology, 2007). Ecology anticipates that if state and local coordination proceed as expected, fecal coliform, dissolved oxygen, pH, and mercury levels will be in compliance with state standards by 2013 (Ecology, 2007). River and stream temperatures are expected to return to compliance by 2065 after trees have been planted and have become well established in riparian areas (Ecology, 2007).

In 2006, the *Mixing Zone Study* was prepared by Cosmopolitan Engineering Group for the City of Arlington to support the preparation of an Engineering Report for the proposed treatment plant expansion to accommodate projected flows through the year 2025 and meet the Stillaguamish River TMDL limitations. The study was conducted specifically to address the following requirements under WAC 173-240-060:

> (e) "A description of the receiving water, applicable water quality standards, and how water quality standards will be met outside of any applicable dilution zone."
>
> (l) "Detailed outfall analysis or other disposal method selected, [including] provision for future needs."

3.3.1.4 Pollutant Loading Sources

Loading sources to the Stillaguamish River system consist of point and nonpoint sources. Point sources are discharges from a distinct location and are regulated under the federal and state National Pollutant Discharge Elimination System (NPDES). Nonpoint sources are diffuse discharges that include stormwater runoff, livestock access, and ground water discharge among others. Land use activities that generate nonpoint pollution include agriculture and livestock, urban commercial and residential development, timber harvest, and the land disposal of industrial waste, solid waste, and residential sanitary waste.

Ecology regulates the discharges of pollutants into surface waters, including municipal effluent discharges, through the NPDES permit process. Ecology bases the NPDES permit upon technology, water quality, and TMDL considerations. The City currently operates their WWTP under NPDES Permit No. WA-002256-0: Modification #1, October 13, 2006. The discharge is released through an outfall whose placement is permitted in Washington State Department of Natural Resources Aquatic Lands Outfall Easement No. 51-070281, October 2002. Current permit limits from the City's WWTP to the river outfall are included in Table 3-2.

Table 3-2 Current Permitted Flow Rates

Parameter Current Design Criteria	Current Design Criteria
Maximum Month Flow	2.0 MGD
Peak Day Flow	3.0 MGD
Peak Hour Flow	5.0 MGD
Influent Maximum Month BOD_5 Load	4,600 lbs/day
Influent Maximum Month TSS Load	4,600 lbs/day(a)
Influent Maximum Month TKN Load	670 lbs/day
Effluent Fecal Coliform (Monthly Average)	200 cfu/100 mL
Effluent BOD_5 (Monthly Average)	< 30 mg/L, 501 lbs/day
Effluent TSS (Monthly Average)	< 30 mg/L, 501 lbs/day
Effluent Ammonia-Nitrogen (Monthly Average)	< 20 mg/L
Effluent Chlorine (Monthly Average)	42 µg/L
Effluent Total Phosphorus (Monthly Average)	N/A
Effluent Total Nitrogen (Monthly Average)	N/A

(a) Ecology approved increase from 3,100 to 4,600 lbs/day in October 2006.

3.3.1.5 Groundwater

The definition of aquifer recharge areas according to WAC 365-190-030 is: "Areas with a critical recharging effect on aquifers used for potable water are areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water." Protection of aquifer recharge areas is provided according to City of Arlington Municipal Code (AMC) 20.88 Part IX. The City operates two drinking-water wells inside the city limits (City of Arlington, 2006). The Haller well field is located to the northeast of the WWTP and draws water from the Stillaguamish River upstream of the WWTP outfall, which is then filtered and treated. The Arlington Airport well, located to the southwest, draws water from a deep aquifer. The WWTP is not located within a designated critical aquifer recharge area.

A geological study was conducted on the site by GeoEngineers (GeoEngineers, 2008). The study reported that groundwater was encountered at 10 to 11 feet below ground surface (bgs) at three boring locations, and at 4 feet bgs at one boring location.

3.3.2 Environmental Consequences

3.3.2.1 Surface Water

During construction, minor erosion and sedimentation are likely to occur. These impacts are anticipated to be minor as the site is relatively flat, and there is dense riparian vegetation between the WWTP site and the Stillaguamish River. During construction, Best Management Practices (BMPs) will be employed to minimize the amount of erosion and sedimentation leaving the site or entering the WWTPs stormwater

collection system. The BMPs will be consistent with Ecology's Stormwater Management Manual for Western Washington (2005), and may include the use of inlet protection, silt fence, straw waddles, and sediment traps as necessary. Clearing will only occur in areas of active construction. Following construction, disturbed areas will be revegetated promptly.

The existing onsite stormwater system will be expanded and designed in accordance with the Ecology Stormwater Management Manual for Western Washington (2005). As with the existing process area, all stormwater runoff from the expanded process area, where any type of process work or material and equipment will be stored, will be diverted to the facility's storm drainage system, using curbs and sloped surfaces and then pumped into the treatment process for processing.

As described in Chapter 1, the project is being conducted to comply with anticipated regulatory requirements. Regulatory limits for the WWTP will be changed as a result of TMDL studies of the Stillaguamish River. Based on discussions with Ecology, it is expected that resulting regulatory changes will become effective upon startup of the upgraded and expanded WWTP following Phase 1 construction. The revised NPDES permit for the City of Arlington Wastewater Treatment Plant is expected to limit, among other parameters, total phosphorus, temperature, fecal coliform, ammonia, copper, zinc, biochemical oxygen demand (BOD), and total suspended solids (TSS) discharges. Table 3-3 lists these expected NPDES permit limits based upon discussions with Ecology and the projected flows and loads of the upgraded treatment facility. The table also lists the corresponding design criteria that is recommended for WWTP improvements.

Table 3-3 Expected 2025 NPDES Permit Limits

Influent Parameter	Expected 2025 NPDES Limits*	Proposed WWTP Design Criteria
Avg. Daily Flow for Max. Month (MGD)(a)	3.42	3.42
Avg. Daily Flow for Max. Week (MGD)	N/A	3.79
Peak Day Flow (MGD)	N/A	4.37
Peak Hour Flow (MGD)	N/A	9.57
Avg. Daily Load for Max.Month BOD5 (lbs/day)(a)	10,638	10,638
Avg. Daily Load for Max. Month TSS (lbs/day)(a)	10,183	10,183
Avg. Daily Load for Max.Month TKN (lbs/day)(a)	1,110	1,110
BOD5 (mg/L)	30 (monthly avg.) 45 (weekly avg.)	<5 (monthly avg) <10 (weekly avg.)
BOD5 (lbs/day)	501 (monthly avg.) 751 (weekly avg.)	<143 (monthly avg.) <316 (weekly avg.)
TSS (mg/L)	30 (monthly avg.) 45 (weekly avg.)	<1 (monthly avg.) <5 (weekly avg.)
TSS (lbs/day)	501 (monthly avg.) 751 (weekly avg.)	<29 (monthly avg.) <63 (weekly avg.)
Fecal Coliform (cfu/100 mL)	39 (monthly avg.) 128 (weekly avg.)	<20 (monthly avg.) <60 (weekly avg.)
Chlorine Residual (µg/L)	42 (monthly avg.) 84 (max. day)	Non-Detect(b)
pH	6 to 9	6 to 9
Ammonia-Nitrogen (mg/L)	2.9 (monthly avg.) 10.9 (daily max.)	<1
Total Nitrogen (mg/L)	N/A	<10
Total Phosphorus (lbs/day) Nov – Jul	~30 (monthly avg.)	<29 (monthly avg.)(c)
Total Phosphorus (lbs/day) Aug – Oct	~23 (monthly avg.)	<21 (monthly avg.)(c)
Jun – Sep Temperature (ºC) Conventional Analysis	24.0 (2016 max. day) 23.8 (2014 max. 7-day avg.) 22.9 (2025 max. day) 22.4 (2025 max. 7-day avg.)	24.0 (max. day)(d) 23.8 (max. 7-day avg.)(d)
Jul – Sep Temperature (ºC) Dynamic Modeling Analysis	> 24.0 (2025 max. day) > 23.8 (2025 max. 7-day avg.)	24.0 (max. day)(d) 23.8 (max. 7-day avg.)(d)
Copper (µg/L) May – Oct	TBD	17 (avg. month)(e) 21 (max. day)(e)
Copper (µg/L) Nov – Apr	TBD	17 (avg. month)(e) 21 (max. day)(e)
Zinc (µg/L) May – Oct	TBD	72 (avg. month)(e) 76 (max. day)(e)
Zinc (µg/L) Nov – Apr	TBD	72 (avg. month)(e) 76 (max. day)(e)

Notes:

(a) Regulatory limits for influent parameters are assumed to be based on design criteria.
(b) Chlorine residual should be non-detect since ultraviolet light is used for disinfection.
(c) Based on effluent total phosphorus concentration of <1 mg/L.
(d) Historical effluent temperatures, assuming no WWTP improvements for temperature control.
(e) Historical effluent metal concentrations, assuming no change due to pretreatment or tertiary filtration.

MGD = million gallons per day
BOD5 = 5-day biochemical oxygen demand
lbs/day = pounds per day
TSS = total suspended solids
TKN = total Kjeldahl nitrogen
cfu = colony forming units
mL = milliliter
mg/L = milligrams per liter
µg/L = micrograms per liter
TBD = to be determined

*The table shows expected NPDES permit limits for 2025 flow volumes. Phase 1 limits will likely differ from these and will be revised based upon monitoring results.

Mixing Zone

A mixing zone is that portion of a water body adjacent to an effluent outfall where mixing results in the dilution of the effluent in the receiving water body. Water quality criteria may be exceeded in the mixing zone as conditioned and provided for in WAC 173-201A-400. Acute and chronic mixing zone dimensions for outfalls discharging into Washington rivers are described in WAC 173-201(A). For the City of Arlington outfall, mixing zone boundaries are defined below (NPDES Permit WA-0022349).

Chronic

The length of the chronic mixing zone (parallel to the shoreline) is 304 feet from the outfall port in the downstream direction, and 100 feet from the outfall port in the upstream direction. The width of the chronic mixing zone (perpendicular to the shoreline) is 28 feet [25 percent of river width at the 7-day, 10-year low flow (7Q10) river flow]. The chronic mixing zone is centered over the outfall port extending 14 feet on both sides (Cosmopolitan Engineering Group, 2006).

Acute

The length of the acute mixing zone (parallel to the shoreline) is 30.4 feet from the outfall port in the downstream direction, and 10 feet from the outfall port in the upstream direction. The width of the acute mixing zone (perpendicular to the shoreline) is 28 feet [25 percent of river width at 7Q10 river flow]. The acute mixing zone is centered over the outfall port extending 14 feet on both sides (Cosmopolitan Engineering Group, 2006).

A dye tracer study was conducted on the existing outfall in August 2006. The study was conducted to help determine the travel time and dilution versus distance from the outfall. This information was used to calibrate the hydrodynamic model to determine the effluent mixing zone. Two models were used to determine effluent mixing and dilution ratios. This information was then used to calculate loading and water quality compliance.

Treatment Plant Discharge

The potential impacts to water quality associated with wastewater discharge are generally related to temperature, bacteria and viruses, nutrients, turbidity, and chemical contamination. As described previously, the proposed treatment method for the upgraded Arlington facility is membrane bioreactor. This method employs some of the most advanced treatment technologies for removing contaminants of concern. Disinfection will be accomplished using UV radiation. Membrane filtration with disinfection is highly effective at removing bacteria (coliform organisms), pathogens, and other contaminants; and is expected to produce a higher quality effluent than the current treatment plant, which is based on conventional technology, with greater reliability.

A discussion of the main constituents of concern in the Stillaguamish River and how the upgraded facility will address them follows. The effect of these water quality impacts on aquatic life, including salmon, is discussed in Section 3.4, Biological Resources.

Temperature. Water temperatures can influence water quality. In general, warmer water temperatures during the summer months are of greatest concern. Ambient summertime Stillaguamish River water temperature in the vicinity of Arlington frequently exceeds the water quality standard during the summer

(Cosmopolitan Engineering Group, 2006). Current effluent temperature ranges from approximately 20°C to 24 °C during the summer. With the WWTP upgrades, it is expected that warm-weather discharges (July to September) to the river will average approximately 74.8°F (approximately 23.8°C maximum 7-day average). There are no temperature restrictions on the current NPDES permit; however, the new permit will likely include reduced temperature limits during the spawning and incubation protection period of October 1 to May 15 to comply with the 2006 water quality rule. As noted in Table 3.3 above, water quality standards are 17.5°C (7 day average of maximum temperatures) from May 16 to September 30 and 13°C (7 day average of maximum temperatures) From October 1 to May 15. The dynamic modeling analysis conducted for the facility does not indicate a reasonable potential for the temperature standard to be exceeded within the 25-year planning horizon. The City will continue to monitor daily effluent temperatures at 3:00 pm during the months of concern, but will establish continuous effluent temperature monitoring with Phase 1 construction under a quality assurance project plan (QAPP). If results show temperature standards are likely not being met, the City will employ adaptive management actions as described in Chapter 1 to bring the facility into compliance with standards.

Bacteria and viruses. Bacteria and viruses live in the intestinal tracts of warm-blooded animals and are present in wastewater, surface water, and groundwater. Some pose a threat to human health. Fecal coliform bacteria are commonly tested for in surface and groundwaters as a general indicator of total bacteria and viruses. As stated above, membrane filtration with UV disinfection is highly effective at removing bacteria (coliform organisms), pathogens, and other contaminants. Design criteria for bacteria is less than 20 colony forming units (cfu)/100 mL for the monthly average and less than 60 cfu/100mL for the weekly average. These levels are well below the current permitted discharge limit of 200 cfu/100mL and the monthly and weekly average of 39 and 129 cfu/100mL, respectively.

Nutrients. Nutrients in MBR-treated effluent include both phosphorous and nitrogen (most typically in the form of ammonia). Phosphorus is typically a limiting nutrient in freshwater systems and is usually found at relatively low ambient levels. Ammonia is toxic and is only infrequently detected in ambient river water. MBR-treated effluent is low in both total phosphorous and ammonia, but the levels are not zero. The existing WWTP is not designed to target removal of phosphorus, but does achieve some removal.

Because phosphorus appears to be the limiting nutrient for algae growth, the future NPDES permit will include a mass load limit for total phosphorus. Ecology stated that the mass limit will be equal to the current "baseline" loading of total phosphorus (the amount of phosphorus currently being discharged to the river from the WWTP), but that during the critical period some additional removal below the "baseline" load will be required. Results of sampling to date indicate that the effluent total phosphorus load from the existing treatment plant currently varies between 28.8 and 43.0 lbs/day.

It is anticipated that there will not be a limit for effluent total phosphorus concentration, but a reduction in the concentration must be achieved to maintain the effluent total phosphorus load below the "baseline" load as the effluent flow increases over time. The proposed design criteria for total phosphorus is less than 29 pounds per day during November through July and less than 21 pounds per day during August through October. As shown in Table 3-3, this is less than the expected permit limits. Currently there is no limit for total phosphorus discharge.

Turbidity and Total Suspended Solids. MBR treatment results in a low level of turbidity (less than 1 NTU) in the effluent. Therefore, turbidity is not anticipated to increase above ambient conditions as a result of the discharge of highly treated water into the river.

MBR treatment also results in low levels of total suspended solids (TSS). TSS levels in MBR-treated effluent are expected to range from a level below the detection limit to 5 mg/l. This will be a reduction from current discharge levels. Permit limits for TSS are not anticipated to change from current conditions (Table 3-3).

Metals (Copper and Zinc). Metals occur naturally in the soil, and are byproducts from industrial processes and day to day occurrences. Common sources of copper include automobile braking linings, corroding copper pipes, and electroplating wastes. A common source of zinc is automobile tires. The freshwater quality standards for metals are calculated based upon WAC 173-201(A)-240 and the lowest hardness from eight samples. A reasonable potential (RP) to exceed acute water quality standards was found for copper and zinc, both under the 2005 and 2025 conditions. Ecology has recommended that effluent metals be monitored twice a month for a period of one year and the reasonable potential analysis be rerun once the data is collected to verify if the reasonable potential still exists and permit limits for metals are warranted (Kennedy Jenks, 2008). River samples should be taken as well to establish background concentrations of zinc. The proposed design criteria for the new treatment facility for copper is 17 µg/L average month and 21 µg/L maximum day. The proposed design criteria for zinc is 72 µg/L average month and 76 µg/L maximum day. These limits are based on a limited set of recent data samples taken on the existing WWTP effluent, and the assumption that no additional removal will be offered by new treatment processes at the upgraded WWTP. The City will conduct sampling and monitoring for copper and zinc under a quality assurance project plan (QAPP). If results show standards for these metals are likely not being met, treatment would be augmented to remove additional pollutants to meet the standards. Currently there is no discharge limit for metals.

Organic contaminants. Organic chemicals may be either naturally occurring or human-made. In general, organic chemicals biodegrade over time to their component elements, although some persistent organic chemicals may not break down for decades. Organic chemicals include hydrocarbons and solvents present in household cleaners, for example. These compounds are frequently found at low levels in residential effluent. Because they are not part of the typical residential waste stream, these compounds enter the system in small quantities associated with disposal of paint, cleaning materials, or automotive wastes. There are currently no surface water quality standards for these compounds. Biochemical oxygen demand (5-day) (BOD_5) can be used as an indicator for many of these chemicals. BOD_5 concentrations of less than 5 mg/L monthly average are anticipated from the treatment plant. Current permitted limits of BOD_5 are less than 30 mg/L monthly average (Table 3-3).

Endocrine Disrupting Chemicals. Secondary treatment of wastewater removes a substantial fraction of the endocrine disrupting chemicals in untreated wastewater. Endocrine disrupting chemicals (EDCs) is a descriptive phrase for a broad group of natural and synthetic organic compounds. These compounds are also referred to as microconstituents. MBR treatment would likely remove these chemicals as well as or better than other secondary treatment methods. Wintegens et al. (2002) reported MBR removal efficiencies for nonylphenol, an EDC, of greater than 90 percent. Despite treatment, a small fraction of some potential EDCs may pass through the treatment system and reach receiving waters (Stahlschmidt-Allner et al., 1997; Ternes et al., 1999). The effects of these chemicals on aquatic life is currently unknown. The City will monitor ongoing research of effects. Currently, state and federal water quality standards and criteria do not consider endocrine disruptor or microconstituent effects.

Summary of Surface Water Impacts

The upgraded WWTP will produce a higher quality effluent than the existing WWTP discharge, and will be subject to more stringent NPDES permit requirements. The combination of expected low concentrations of pollutants in highly treated water from the upgraded WWTP and rapid dilution when discharged to the Stillaguamish River is expected to result in no significant adverse change to ambient water quality and quantity. The quality of the discharged water would meet more stringent surface water quality standards than under current conditions, and would be further conditioned through the revised NPDES permit issued by the Washington State Department of Ecology. The City will conduct sampling and monitoring for temperature, copper, and zinc under a quality assurance project plan (QAPP). If results show standards for these parameters are likely not being met, the City will employ adaptive management actions as described in Chapter 1 to bring the facility into compliance with standards.

Groundwater

Groundwater diversion (construction dewatering) may be required for deeper excavations and would be conducted in accordance with local requirements. Dewatering operations would comply with all appropriate discharge and treatment rules and regulations established by the Washington State Department of Ecology.

3.3.3 Mitigation

During construction, BMPs will be employed to minimize the amount of erosion and sedimentation leaving the site during rainfall events. The BMPs will be consistent with the Stormwater Management Manual for Western Washington (Ecology, 2005), and may include the use of silt fences, straw bales, and geonetting. Exposed soil areas and stockpiles will be covered. Construction involving soil disturbance would be performed during the dry season to the extent possible. Clearing will occur only in areas of active construction. Following construction, the site will be revegetated promptly. Chemical handling and vehicle fueling will be conducted in contained areas on site. Any spills will be cleaned promptly to minimize the potential for runoff. During operation, compliance with permit conditions dictated by the NPDES and TMDL limitations would ensure that no significant impacts to surface water quality occur. Additional mitigation measures are provided below.

- To minimize turbidity, all water from dewatering operations would be routed through sediment removal facilities as needed prior to eventual discharge either to infiltration trenches or the plant's on-site storm system.
- Discharge of dewatering water would comply with construction NPDES standards and permit requirements.
- A quality assurance project plan will be submitted to Ecology detailing the City's plan for conducting water quality monitoring and reporting to ensure that the discharge of highly treated water from the treatment plant meets or exceeds all water quality standards. If permit standards are not being met, treatment would be augmented to remove additional pollutants to meet the standards.
- Reliability and redundancy would be included in mechanical and electrical equipment at the WWTP to prevent any untreated or partially treated water from leaving the facility.
- Stormwater generated from areas where wastewater and solids are handled would be collected and treated in the WWTP.

3.4 BIOLOGICAL RESOURCES

This section addresses Threatened and Endangered Species, fish and wildlife resources, and vegetation. The discussion in this section is based on information provided by National Oceanic and Atmospheric (NOAA) Fisheries, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife Priority Habitats and Species (PHS) mapping, and site visits to the project area.

3.4.1 Affected Environment

3.4.1.1 Threatened and Endangered Species

Information provided by National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and U.S Fish and Wildlife Service (USFWS) indicates that the project would occur within the general range of the Endangered Species Act (ESA)-regulated fish and wildlife species listed in Table 3-4 (NMFS 2008, USFWS 2008).

Table 3-4 Federal and State Status

Listed Species	Federal Status	State Status
Puget Sound Chinook salmon	Threatened	Candidate
Puget Sound Steelhead	Threatened	--
Puget Sound/Coastal Native char (Dolly varden/bull trout)	Threatened	Candidate
Marbled murrelet	Threatened	Threatened
Canada lynx	Threatened	Threatened
Grizzly bear	Threatened	Endangered
Northern spotted owl	Threatened	Endangered

3.4.1.2 Fish and Wildlife Resources

The project site is located in the lower-Stillaguamish watershed, which consists primarily of agricultural, rural residential, commercial and light industrial areas. General habitat types within the vicinity of the project area include open water (Stillaguamish River), lowland conifer-hardwood forest, riparian wetlands and agriculture, pasture and mixed environs. The immediate project area consists primarily of open water and mixed environs.

Numerous anadromous and resident fish species use the Stillaguamish River for a migration corridor, as well as for rearing and foraging. These species include Chinook (summer and fall run), coho, pink, chum and sockeye salmon, as well as steelhead (summer and winter run), native char (dolly varden/bull trout), coastal cutthroat trout and rainbow trout.

Priority Habitats and Species data from the Washington State Department of Fish and Wildlife (WDFW) indicates that the area near the confluence of the Stillaguamish River's north and south forks supports a significant concentration of wintering bald eagles (WDFW, 2008). Additionally, several eagle nesting

sites have been documented approximately 0.5 mile northwest of the project site. The bald eagle has been delisted from the threatened and endangered species list as of August 8, 2007.

It is unlikely that any large mammal species such as bear or elk utilize the project area, due to the lack of suitable habitat (mature forest) and urban development nearby. Common wildlife species that may utilize habitat on-site include small mammals, deer, songbirds, waterfowl, and various reptiles and amphibians.

3.4.1.3 Vegetation

The project site is largely paved or graded. Vegetation on the project site, or immediately adjacent to the project site, consists primarily of grasses and ornamental landscape plants. Riparian areas to the west of the project site include a combination of native and invasive species. Tree species include black cottonwood and red alder, while the shrub community is comprised of willows, red osier dogwood, Himalayan blackberry, salmonberry, morning glory and mowed lawn. A small restoration area between the WWTP site and the river consists of several types of native plantings, such as Western red cedar, Douglas fir and snowberry.

3.4.2 Environmental Consequences

3.4.2.1 Threatened and Endangered Species

The proposed project will not involve in-stream work or stream bank alterations. Therefore, Chinook, steelhead, and bull trout are not expected to be adversely affected by the project construction.

WDFW requires implementation of a Bald Eagle Management Plan (BEMP) when proposed work occurs within 250 feet of a shoreline and within 0.5 mile of an active nest. Based on the distance of the site from the river shoreline (over 400 feet) and from active nests (over 0.5 mile), a BEMP would not be required.

The primary effects of the proposed action would occur in relation to the discharge of treated effluent into the Stillaguamish River at River Mile 17.7. The potential effects to listed salmonids associated with wastewater discharge are generally related to temperature, nutrients, chemical contamination, and metals. The effects of the upgrades and expansion project on water quality are discussed in Section 3.3. A discussion of the main constituents of concerns to aquatic life, including threatened and endangered salmonids, and how the facility addresses them follows.

Temperature. Elevated temperature can have a variety of effects in aquatic systems. Species intolerant of heated water may disappear, while other species that are rare in cooler water may thrive, so that the structure of the community changes (Mason, 1991). However, fish are often able to acclimate to temperature changes, and as a result, large-scale mortalities of fish due to thermal pollution are infrequent (Mason, 1991). The optimal temperature for adult salmon it is about 12° C. Although successful salmon spawning has occurred in waters from 2° to 21° C, streams and rivers should not exceed 17.5° C. Temperatures over 21° C are considered unacceptable.

The Stillaguamish River within the project area has been identified as a "salmonid spawning, rearing, and migration" aquatic life use category under Washington State Surface Water Quality Standards (Chapter 173-201A WAC, 2006 Rule). Identifying characteristics of this use category is salmon or trout spawning or emergence that only occurs outside of the summer season summer (September 16 through June 14).

However, additional spawning and incubation protection for salmon and trout is applicable to the portion of the Stillaguamish River in the vicinity of the Arlington WWTP from October 1 through May 15. During this period the 7-DADMax temperature is 13° C, which coincides with the initiation of spawning for salmon and at fry emergence for salmon and trout (Ecology Publication 06-10-038). Other common characteristic aquatic life uses of this category include rearing and migration by salmonids (Ecology, 2006a).

The critical timeframe for treated effluent impacts on stream temperatures will be during the late summer from July 15 to September 15. With the WWTP upgrades, it is expected that warm-weather discharges (July to September) to the river will average approximately 74.8°F (approximately 23.8° C 7-DADMax). Current discharge effluent temperatures range from approximately 20° C to 24° C during the summer. Stream temperatures within the Stillaguamish River have been monitored by Ecology at station 05A070 located at River Mile (RM) 11.1, approximately 6.4 miles downstream of the Arlington WWTP. Data suggests that 7-DADMax temperatures ranged from 20.3° C to 23.7° C for the period of record between 2001 and 2007 (Ecology, 2008). Effluent temperatures outside of this timeframe are generally at or below the criteria stated above. Regardless, Ecology will require the City to conduct sampling and analysis followed by water quality modeling to verify compliance with water quality standards for temperature. Elevated stream temperatures in the vicinity of the outfall may present a physiological barrier to upstream migrations if elevated effluent plume temperatures span the wetted width of the stream. The acute mixing zone for WWTP effluent occupies approximately 25 percent of the stream's wetted width and, therefore, should not interfere with salmonid migrations through the project area, because migrating fish could avoid it.

The river and treatment plant water temperature estimates indicate a minimal difference in temperature between the treated effluent and the receiving environment at the discharge point. The minimal temperature differential would not change the ambient river temperature beyond the mixing zone, minimizing the potential for adverse impacts to threatened and endangered aquatic species from elevated temperature.

Nutrients. Excess nutrients can artificially stimulate plant growth, resulting in algal blooms which speed up the aging process of aquatic systems in addition to contributing to low dissolved oxygen levels, which can affect salmonids, particularly juveniles. In addition, ammonia is toxic to salmonids.

With nitrification included in the upgraded facility, effluent ammonia concentrations below 1 mg/l are expected. These levels meet the water quality standards for ammonia. These standards have been determined protective of aquatic life, including salmonids. The future NPDES permit will include a mass load limit for total phosphorus. The mass limit will be equal to the current "baseline" loading of total phosphorus from the WWTP into the river. During the critical period some additional removal below the "baseline" load will be required. Meeting these expected limits will be protective of salmonids, including threatened and endangered species.

Chemical Contaminants. The upgraded facility will utilize MBR treatment technology. This represents the highest practical level of treatment, achieving greater removal of contaminants than the existing WWTP treatment process. MBR technology, however, does not remove all constituents of concern to aquatic life in the receiving water.

Organic chemicals may be either naturally occurring or human-made. Some of these chemicals have been shown to be toxic to fish. Salmonids, including threatened and endangered species, are thought to be

more vulnerable to organic chemicals than other species of fish. In general, organic chemicals biodegrade over time to their component elements, although some persistent organic chemicals may not break down for decades. If the treatment plant capacity is expanded, there is a higher potential for adverse impacts to threatened and endangered species from exposure to organic chemicals.

Metals. Metals, including copper, lead, and zinc, may be present in highly treated water. They do not break down and are considered persistent chemicals. In general, metals bind to sediment or particulates suspended in water, but they may also dissolve in water and accumulate in surface sediments or bioaccumulate in the tissues of aquatic life. Metals discharged to the river may cause a variety of effects on biological resources. The types of effects would vary depending upon the particular metal and the level of exposure. At high enough exposures, metals may cause immediate health risks, including death, to plants and animals. At lower levels, long-term effects such as those associated with reproduction or growth may potentially occur. In general, the acute toxicity levels of most metals for aquatic organisms are considerably higher than the levels that would be allowed by state and federal water quality standards (Mason, 1991; World Health Organization, 1998).

At the proposed design concentration levels, the Mixing Zone Study showed that a reasonable potential to exceed toxicity limits for copper and zinc would occur before year 2025, but not during the operation of Phase 1 improvements. The City will be undertaking a monitoring program once the Phase 1 improvements are complete to better establish effluent concentration levels, as well as river background levels. Currently there are no discharge limits for metals. Adverse impacts to threatened and endangered species from dissolved metals are not anticipated because levels of dissolved metals are expected to be below the levels considered toxic to aquatic organisms, including threatened and endangered species, both inside and outside the regulatory mixing zone for the project.

Endocrine Disrupting Chemicals. The review of studies has shown that endocrine disruption is undoubtedly adversely affecting wild fish populations, including threatened Chinook salmon, all over the world through a variety of pathways including hormone receptor interactions, interference with biosynthesis of sex steroids, disruption of hormonal control by the pituitary or reproductive and adrenal processes. However, in most cases the exact process or mode of action are poorly understood and the data that has been collected is largely confined to a few select species. Chemical compounds responsible for the adverse effects may be due to both synthetic and natural compounds. Currently, there is very little information and limited understanding of how the existing endocrine disruption is affecting population fitness (IPCS, 2002). The City will continue to monitor research as it becomes available, and incorporate results from research as appropriate.

Flows. There is a small potential for the effluent flow from the outfall to act as a flow attractor, thus disrupting migration and movement of salmonids within the reach. Chinook may enter the system as early as August with a peak in September. Stream flows at the USGS gauging station 5.4 miles northeast of Arlington, Washington on the North Fork Stillaguamish River average 459 cubic feet per second (cfs) in August and 672 cfs during the period of record from August 1928 through September of 2007 (USGS, 2008). Flows in the project vicinity are anticipated to be much higher due to its location below the confluence of the North and South Forks of the Stillaguamish River. The effluent discharge under Phase 1 upgrades is expected to be 2.69 MGD (maximum month flow) or approximately 4 cfs (current permitted flow rates are 2.0 MGD), which would be roughly equivalent to one percent flow during August and approximately two-thirds of one percent during September based on flows in the North Fork Stillaguamish River upstream of the project area. With contributing flows from the South Fork Stillaguamish River immediately upstream of the project area it is anticipated that the percentage of

overall stream flow attributed to effluent would be reduced even further. It is unlikely that effluent discharged from the WWTP would act as a flow attractant to salmonids thus delaying spawning or subjecting salmonids to highly treated wastewater effluent.

Summary of Impacts

The upgraded WWTP will produce a higher quality effluent than the existing WWTP discharge. The expected low concentrations of pollutants in highly treated water from the upgraded WWTP and rapid dilution will produce a higher quality effluent than achievable with the current WWTP treatment process. However, the volume of flow will be increased as the service area grows. The City will continue to monitor both effluent and receiving water to ensure that impacts are not occurring.

Based on modeling results, the presence of nutrients, metals, or elevated temperatures resulting from the upgraded and expanded facility is not expected to result in significant adverse effects to threatened or endangered species. The discharge water from the upgraded facility would be required to meet surface water quality standards through a revised NPDES permit to be issued for the upgraded facility. . The City will conduct sampling and monitoring to determine compliance with the water quality standards for temperature, copper, and zinc under a quality assurance project plan (QAPP) to be submitted to Washington Department of Ecology.

3.4.2.2 Plants and Animals

The proposed expansion will, to the greatest extent, limit excavation thereby limiting plant and tree removal. Ornamental landscaping plants located in the Utilities Administration office parking lot will likely require removal. Post-construction landscaping near the Utilities Administration office will include a combination of natives and ornamental plant species.

Construction noise may temporarily displace some species of wildlife that may be in the area. However, wildlife would be expected to return to the area once construction is complete.

The upgraded and expanded WWTP will discharge highly treated effluent water into the Stillaguamish River through the existing WWTP outfall. The facility will utilize MBR treatment technology and UV light disinfection. This represents the highest practical level of treatment technology; however, MBR technology does not remove all constituents from the effluent. As described above in Section 3.4.2.1, Threatened and Endangered Species, some of the constituents present in the treated wastewater are regulated and are known to have the potential to affect aquatic life. Expected regulatory requirements under the new NPDES discharge permit will result in a higher quality effluent than currently discharged to the river, which will accrue benefits to aquatic life.

3.4.3 Mitigation

3.4.3.1 Threatened and Endangered Species

- Construction BMPs and a Stormwater Pollution Prevention Plan would be implemented to minimize sedimentation of water bodies.
- Construction BMPs, including spill prevention and containment measures to be included in the project SWPPP, would be used to reduce the risk of accidental spills and respond to a spill should one occur.

- Treatment of construction dewatering discharges would be provided, such as sediment removal or filtration, as necessary before the release of such water.
- Construction areas would be clearly identified to minimize habitat disruption.
- Disturbed areas would be restored to the maximum extent possible.
- Water quality monitoring would be conducted to ensure that the highly treated water discharged meets or exceeds water quality standards.

3.4.3.2 Plants and Animals

- Disturbed areas would be restored to the maximum extent possible.
- BMPs would be implemented during construction to minimize the potential for erosion and chemical spills.

3.5 WETLANDS

3.5.1 Affected Environment

Various sources were used to determine the presence and extent of wetlands at or near the project site. The Washington Department of Ecology digital sensitive areas map and the Washington Department of Fish and Wildlife (WDFW) Priority Habitat Site map identify wetlands approximately 4.0 river miles downstream of the project site, at the confluence of March Creek and the Stillaguamish River (WDFW, 2008). The Arlington Comprehensive Plan critical areas, open space, and restoration map identifies several wetlands within the City limits. Most of the wetlands are associated with the Stillaguamish River or its tributaries. No wetlands are identified on or in the immediate vicinity of the WWTP site. Most areas of the WWTP site are paved or graded. During a field visit, remaining undeveloped areas on the WWTP site and the immediate vicinity were determined to be upland based on the dominance of upland vegetation, lack of wetland soils, and/or lack of wetland hydrology.

3.5.2 Environmental Consequences

Construction and operation of the WWTP upgrades and expansion would have no effect on wetlands.

3.5.3 Mitigation

Wetland impacts are not expected on the WWTP site and, therefore, compensatory mitigation is not proposed. However, Best Management Practices will be implemented to minimize the potential for indirect impacts to wetlands that may be located offsite.

3.6 CULTURAL RESOURCES

This section presents a summary of the findings of the archaeological and traditional cultural places assessment conducted by Northwest Archaeological Associates, Inc. for the City of Arlington (NWAA, 2006). The assessment included archival and literature review, consultation with the Stillaguamish Tribe, Tulalip Tribe, and the Washington State Department of Archaeology and Historic Preservation (DAHP), and field reconnaissance of the WWTP site.

3.6.1 Affected Environment

3.6.1.1 Ethnography and History

The project area is within the aboriginal territory of the Stillaguamish Tribe. The Stillaguamish occupied villages and campsites along the Stillaguamish River and its tributary streams and creeks. The *Cultural Resources Assessment for the Arlington Wastewater Treatment Plant* (NWAA, 2006) documents the presence of the historic, archaeological, and ethnographic locations near the project area.

In 1853, the first Euroamerican settlement in Snohomish County was established. By 1874, logging activities developed along the Stillaguamish River and establishment of communities along the river followed. Logging, railroad transportation, and community development evolved together in Snohomish County (NWAA, 2006).

Historic period use of this area focused primarily on domestic activities; early historic period dwellings and associated outbuildings, and a hotel were in the project area beginning in the late 1800s. In 1925, a water works filtration plant was built on the site. The original water treatment plant was replaced by a secondary treatment facility in 1974, upgraded in 1998. Facilities of all three utility constructions still exist on the Utility Site property and are actively used (NWAA, 2006).

3.6.1.2 Treatment Plant Site

The *Cultural Resources Assessment for the Arlington Wastewater Treatment Plant* (NWAA, 2006) identified historic site 45SN409 (a privy with artifacts dating from 1890 to 1930) as being located on the WWTP site.

The cultural resources assessment also identifies several historic properties and structures near the project site. Three historic sites are surface historic trash scatters. Date ranges for the sites based on temporally diagnostic artifacts are ca. 1900 to present (45SN394), post-1935 (45SN401), and post-1942 (45SN402). Other known historic resources within one mile of the project site include an historic road (45SN381), a railroad (45SN378), and two historic buildings. The two historic buildings include Our Savior's Lutheran Church (31-00151), determined not eligible for the National Register of Historic Places, and a farmhouse at 23221 SR-530 NE (31-001150), determined eligible for the NRHP (NWAA, 2006).

3.6.2 Environmental Consequences

Potential impacts to cultural resources are primarily associated with construction-related, ground disturbing activity. Operational impacts to cultural resources are not anticipated with any component of the proposed project.

A professional archaeologist has conducted on-the-ground physical surveys, literature research, and evaluation of archaeological resources in the project area (NWAA, 2006). One historical archaeological site, 45SN409, later designated as the Teager/Weimer Site, was identified and determined eligible for the National Register of Historic Places (NRHP). Further, archaeologists determined that the WWTP upgrades and expansion would damage important elements of the Teager/Weimer Site. The City contracted with NWAA, per the terms of the Washington DAHP Archaeological Excavation Permit No. 07-26, to process, analyze, report on, and curate all of the artifacts recovered from site 45SN409 (NWAA, 2007a, 2007b; DAHP, 2007). The field excavation work was completed between January 22nd and 31st, 2008. NWAA then researched, processed, and recorded all recovered artifacts before

forwarding them to the Burke Museum for curation. NWAA issued the Data Recovery Report (Site 45SN409) on June 10, 2008 (NWAA, 2008).

Though no archaeological sites have been recorded within the project area, the project was judged to have a high potential for encountering prehistoric, ethnographic period, and historic period archaeological resources and/or human remains based on archival research. The likelihood of finding intact archaeological materials, however, is considerably lessened by the amount of modern land use associated with extensive development of the project area for the wastewater treatment and water treatment facilities.

Although the potential to encounter archaeological resources exists anywhere ground disturbing activity occurs, the potential to impact archaeological resources is greatest where construction activity will involve excavation at depths greater than 60 centimeters below the current ground surface.

3.6.3 Mitigation

Mitigation measures to minimize impacts to cultural resources at the WWTP site are identified below.

- Data recovery of historical site 45SN409 was performed as mitigation as described above. Archaeological excavation was conducted under DAHP Archaeological Excavation Permit No. 07-26. Curation of artifacts and reporting are provisions of the permit.

- An Inadvertent Archaeological Discovery Plan (IADP) has been developed for the project and will become part of the contractor agreement. In the event that any archaeological deposits or human remains are inadvertently discovered during construction excavation for any component of the proposed project, ground disturbing activity will be halted and the Stillaguamish Tribe, Tulalip Tribe of Indians, the DAHP, and a professional archaeologist will be immediately notified. Treatment of archaeological deposits or human remains would be coordinated through consultation between these parties.

3.7 VISUAL AESTHETICS

3.7.1 Affected Environment

Arlington is located on a terrace above the Stillaguamish River. Elevations generally range from 115 feet to 120 feet and as high as 480 feet in the southeastern portion of the service area. The WWTP site is located approximately 400 feet south of the river, and is located near parks, residential, commercial, and industrial uses. The WWTP site slopes slightly down to the north and west towards the river.

West Burke Avenue/SR-530 is elevated 10 to 20 feet above the south border of the site. State Route (SR) 9 is located along the western boundary and is also elevated above the site (approximately 20 feet). Views of the site are generally restricted by these roads.

3.7.2 Environmental Consequences

Typical construction impacts would include the presence of construction equipment on the street and at the site, materials stockpiled in various locations on the site, and worker vehicles. These impacts would be temporary.

Aesthetic impacts associated with the operation of the upgraded and expanded WWTP would be minor as the site is currently developed as the City's Utility Site, which includes the City's existing wastewater treatment plant. The site would continue to include structures and equipment typical of a light-industrial facility. Views from adjacent properties and Haller Park to the north would be similar, though new buildings would be present and would be highly visible. The expanded structures would be similar in appearance to the existing structures. The existing, and expanded facilities will be visible from SR-9 located to the west.

3.7.3 Mitigation

- Construction BMPs would be used to minimize visual impacts along the conveyance route (e.g., minimizing areas of disruption, covering excavated materials, and keeping construction areas clean).
- Treatment functions would be enclosed in structures where possible.
- Lighting would be low-level and designed to comply with Illumination Engineering Society of North America requirements such that no direct beam illumination would leave the facility site.

3.8 SOCIO-ECONOMIC/ENVIRONMENTAL JUSTICE

This section examines the socio-economic conditions in the City of Arlington and Snohomish County that may affect, or be affected by, the proposed WWTP upgrades and expansion. Also analyzed are conditions relating to Executive Order 12898, which addresses potential impacts of federal actions on minority and low-income populations.

3.8.1 Affected Environment

3.8.1.1 Population and Socio-economic Conditions

In 2000, the population for the City of Arlington was reported at 11,713 by the 2000 Census (based on 1999 data). The population in 1999 represents an increase of approximately 82 percent from the total population in 1990, compared to a 25 percent population increase in Snohomish County as a whole during the same period. Much of this population increase was attributable to several annexations. The median age of the city's population is 31.5 years (U.S. Census Bureau, 2000).

In 2000, the City-wide median household income, as reported by the Census, was $46,302. The three industries that provide the largest employment based within Arlington are manufacturing; educational, health, and social services; and retail (U.S. Census Bureau, 2000).

3.8.1.2 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. In a memorandum accompanying the Executive Order, President Clinton urged federal agencies to incorporate environmental justice principles into planning and programming activities. The National Environmental Policy Act (NEPA) provides a forum for environmental justice analysis and for involving minority and low-income populations in the planning and project development process. Executive Order 12898 lists three major principles of environmental justice:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- Prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low-income populations.

Title VI of the Civil Rights Act of 1964 states that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Executive Order 12898 is a renewed focus on the Title VI law with respect to minority populations and adds emphasis on low-income populations.

Environment Justice communities include minority and low-income populations. Federal agencies are required to identify and address disproportionately high and adverse human health or environmental effects of proposed actions on minority and low-income populations. This requires identifying minority and low-income populations currently living in the study area, as well as identifying any social and economic characteristics of these populations that may cause the proposed action to result in disproportionately high and adverse effects on these populations.

Definitions

Low-income population means any readily identifiable group of low-income persons who live in geographic proximity of the proposed project and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by the proposed project, policy, or activity. For purposes of environmental justice analysis, low-income is defined as individuals with a ratio of income to poverty level between 0.00 and 0.99.

Minority Population means any readily identifiable group of minority person (Black or African American, Hispanic or Latino, Asian, American Indian or Alaskan Native, Native Hawaiian or other Pacific Islander, or individuals identified as belonging to one other race or two or more races) who live in geographic proximity of the proposed project and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed program, policy or activity.

A *minority population* is considered to be present if the minority population percentage of the affected area is greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. Guidance from the U.S. CEQ states that:

> "Minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis" (CEQ, 1998).

Disproportionately High and Adverse Effect on Minority and Low-Income Populations means that an adverse effect is predominately borne by a minority population and/or a low-income population and that the effect will be suffered by the minority population and/or low-income population and is appreciably

more severe or greater in magnitude than the adverse effect that will be suffered by the rest of the population. The Civil Rights Act ensures that this potential for discrimination is identified and addressed without regard to race, color, national origin, sex, age, or disability and includes the following adverse affects: destruction or disruptions of community cohesion (community separation);

- destruction or disruptions to access of available public and private facilities and services;
- adverse employment effects;
- displacement of businesses, housing, and people;
- tax and property value losses;
- actions injurious to the public's health (e.g., air, noise and water pollution); and
- actions harmful to the public's well being (e.g., aesthetic impacts and loss of recreational property).

The locations of minority and low-income populations potentially affected by the proposed WWTP expansion were identified through a review of census data for the study area.

Environmental Justice Study Area

For purposes of the environmental justice analysis, the study area is defined as the land encompassed within the City of Arlington wastewater service area (see Figure 2), which falls within Census Tract 535.03, Block Groups 1, 2, 3, 4, 5, 6, and 7; Census Tract 535.04, Block Groups 1, 2, 3, 4, and 5; Census Tract 528.03, Block Group 1; and Census Tract 527.01, Block Group 1.

Table 3-5 includes information about the minority populations identified within the study area. Approximately 12 percent of the total population in the study area is considered minority, which is slightly lower than Snohomish County as a whole (16.6 percent).

Table 3-5 Minority Populations in Project Study Area

	Census Tract 535.03 Block Groups 1, 2, 3, 4, 5, 6, 7	Census Tract 535.04, Block Groups 1, 2, 3, 4, 5	Census Tract 528.03 Block Group 1	Census Tract 527.01 Block Group 1	Study Area (total)	Snohomish County, Washington
Total:	7597	4849	1236	1,455	15,137	606,024
Not Identified as Hispanic or Latino:						
White alone:	6769	4329	921	1312	13,531	505,454
Black or African American alone:	12	35	75	0	122	9314
American Indian or Alaska Native alone:	101	25	0	17	143	7531
Asian alone:	132	115	38	12	297	35303
Native Hawaiian or Other Pacific Islander alone:	34	0	0	0	34	1216
Some other race alone.	46	0	5	0	51	1076
Two or more races:	129	73	98	22	322	18790
Identified as Hispanic or Latino[1]						
White alone:	142	146	46	30	364	12589
Black or African American alone:	0	0	0	0	0	273
American Indian or Alaska Native alone:	0	0	0	0	0	596
Asian alone:	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander alone:	0	0	0	0	0	34
Some other race alone.	154	109	53	62	378	10289
Two or more races:	78	17	0	0	95	3328
Minority	828	520	315	143	1,806	100570
Percent minority:	10.9%	10.7%	25.5%	9.8%	11.9%	16.6%

Source: 2000 U.S. Census data, 2000. Sample data set #3, Table P7

[1] Census questions allow individuals to identify as both Hispanic or Latino and another race. Totals in the second half of the table reflect individuals who identify as Hispanic or Latino as well as white, Alaska Native, Asian, Native Hawaiian or other Pacific Islander, a race not listed, or two or more races.

Table 3-6 identifies low-income populations in the project study area, and also within Snohomish County as a whole. Approximately 7.1 percent of the total population in the study area is considered low-income, according to DDHS poverty guidelines. This number is slightly higher than the percentage of the population in Snohomish County (6.8 percent) that is considered low-income.

Table 3-6 Low income Populations in Project Study Area

	Census Tract 535.03 Block Groups 1, 2, 3, 4, 5, 6, 7	Census Tract 535.04, Block Groups 1, 2, 3, 4, 5	Census Tract 528.03 Block Group 1	Census Tract 527.01 Block Group	Study Area (total)	Snohomish County, Washington
Total number of people:	7587	4787	1236	1455	15065	597,813
Ratio of income to poverty level:						
Under 0.50	100	139	81	12	332	19,241
0.50 to 0.74	116	93	0	72	281	10,133
0.75 to 0.99	227	239	0	0	466	11,650
Low income:	443	471	81	84	1079	41,024
Percent low income:	5.8%	9.8%	6.6%	5.8%	7.1%	6.8%
Source: 2000 U.S. Census data. Sample data set #3, Table P88. Note: These numbers do not include individuals living in institutions						

School lunch data is used an additional metric for determining environmental justice populations because it is readily available from the National Center of Education Statistics (NCES) and provides a more recent data set than census data. Table 3-7 shows the number of students attending schools in the City of Arlington who quality for free or reduced-price lunch programs.

Table 3-7. Students Qualifying for Free or Reduce-Price Lunch in the City of Arlington

School Name	Free/Reduced-Price Lunch Students
Arlington High School	243
Eagle Creek Elementary	159
Kent Prairie Elementary	133
Pioneer Elementary	90
Post Middle School	221
Presidents Elementary	176
Weston High School	24
Stillaguamish School	0
Trafton Elementary	48
Total students in Arlington School District	5,555
Percent of students qualifying for free or reduce-price	19.6%

Source: NCES data, 2005-2006 school year.

3.8.2 Environmental Consequences

The City of Arlington is upgrading and expanding WWTP to accommodate projected population growth and to comply with tightening discharge limitations due to water quality concerns. Rate increases will be necessary because the project is capital intensive.

Based on the demographic information and the environmental justice analysis, the population affected by the project is expected to be predominantly non-minority and non-low-income. The proportions of minority and low-income populations in the study area are 11.9 percent and 7.1 percent, respectively. The proportion of minority individuals and the proportion of low-income individuals in the study area is the same or lower than in the County level as a whole (16.6 percent and 6.8 percent). The percentage of low-income individuals is based on the Census 2000 Summary Data 3 file which provides the number of individuals within a defined area that fall below the determined poverty level. NCES data shows 19.6 percent of students in the Arlington School District qualify for free or reduced-priced lunch which suggests that demographics within the study have changed since the 2000 census.

The estimated increase in monthly charge to offset the costs of the project would range from $9.00 to $16.00 depending on the amount of grants or funding that is secured for the project. This increase in monthly charge could adversely affect some low-income and minority populations. Based on the demographic information and the environmental justice analysis, the population affected by the project is expected to be predominantly non-minority and non-low-income; percentages of low-income and minority populations in the study area are the same or similar to the County average. Funding sources are aggressively being sought to reduce financial impacts. As described in Chapter 1, the project would improve water quality in the Stillaguamish River, which would accrue benefits to the general public, including minority and low-income populations. Additionally, no appreciable direct impacts to local businesses, including those where minority and low-income persons may be employed, are expected.

3.8.3 Mitigation

- Grant funding will continue to be sought to further reduce costs to Arlington residents served by the wastewater treatment system.

3.9 AIR QUALITY

3.9.1 Affected Environment

This section describes the existing air environment that may affect, or be affected by, the proposed WWTP upgrades and expansion. The air environment includes climate, air quality, and prevailing wind conditions. These factors are important in determining the potential for air emissions and odor impacts, and play an important role in wastewater facility design.

3.9.1.1 Regulatory Background

The EPA Office of Air Quality Planning and Standards has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, which are called “criteria” pollutants. EPA has identified two types of standards for these pollutants: (1) primary ambient air quality standards, which define levels of air quality necessary to protect public health with an adequate margin of safety; and (2) secondary

standards, which define levels needed to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Under federal regulations, areas that violate primary ambient air quality standards are designated as nonattainment areas. The geographic area where the WWTP site is located is the northern part of Snohomish County. Based on local air quality monitoring data, the EPA has determined this area is currently a maintenance area for ozone under the EPA classifications (Ecology, 2008). The standards for ozone were violated in the past but are now being met and closely monitored under a State Implementation Plan (SIP) for attainment of air quality standards.

The Puget Sound Clean Air Agency (PSCAA) is the agency with primary responsibility for air quality compliance in Snohomish County. The Puget Sound Clean Air Agency regulates odors in the Puget Sound area and enforces local and state law. Odors and emissions that may be a detriment to a person or property are addressed under PSCAA Regulation I, Article 9.11(a); Chapter 70.94 RCW; and WAC 173-400-040(4) and (5).

The Puget Sound Clean Air Agency can take enforcement action on odor complaints under Regulation I, Article 9.11(a). This regulation states that it is unlawful to cause or allow air emissions "in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interferes with enjoyment of life and property" (PSCCA Reg.1, Article 9.11(a)).

3.9.1.2 Regional Air Quality

The project site lies within the Puget Sound airshed, where air quality is greatly influenced by urban development, the Pacific Ocean, the mountains, and weather patterns. The Puget Sound basin has a mild, modified marine climate characterized by cloudy, cool, and wet winters, and relatively dry and mild summers. Temperatures are generally moderate with few extremely cold or hot days throughout the year (Western Regional Climate Center, 2003). When onshore airflow to the area is interrupted, the combination of urban activities, weather, and topography can lead to air stagnation and rising air pollution.

The average wind velocity within the Puget Sound Lowland is less than 10 miles per hour (mph). The prevailing wind direction is primarily from the southwest during the wet season (winter) and north or northwest during the summer. Occasional severe winter storms produce strong northerly winds.

Although the Puget Sound Lowland area is the most densely populated and industrialized area in Washington, there is sufficient wind most of the year to disperse air pollutants released into the atmosphere. Air pollution is usually most noticeable in the late fall and winter seasons, under conditions of clear skies, light wind, and a sharp temperature inversion. Temperature inversions occur when cold air is trapped under warm air, preventing vertical mixing in the atmosphere. Inversions can last several days and can prevent pollutants from being dispersed by the wind. Inversions are most likely to occur during October, November, December, January, and February. If poor dispersion persists for more than 24 hours, it can result in the declaration of an "air pollution episode" or local "impaired air quality" by PSCAA.

Existing air quality in the project area is typical of residential and commercial areas. The project area is located in the vicinity of SR-9, a major arterial in the area, and is bordered on three sides by

predominantly residential and commercial neighborhoods, with areas of open space and light industrial uses. The main source of air pollution in the project area is from automobiles. Other sources of air pollutants include wood smoke from fireplaces and emissions from yard maintenance equipment.

3.9.1.3 WWTP Site Existing Air Quality

The project site is currently developed and in use as the municipal wastewater treatment plant.

Cars and trucks using SR-9 to the west of the site contribute to pollution and odors in the project vicinity. None of the adjacent businesses were identified as sources of air pollutants or odors during site visits; however, employee vehicles and delivery trucks contribute to dust and odor emissions in the project vicinity.

3.9.2 Environmental Consequences

Generally, construction-related air quality impacts would include generation of fugitive dust at construction sites during active construction as well as odors, carbon monoxide (CO), and particulates from construction equipment exhaust. Construction of the upgrades and expansion would occur for approximately 18 months. Potential construction-related air impacts, however, would be the greatest during initial clearing, grading, and excavation activities. Impacts would be intermittent.

Operational impacts from wastewater treatment plants predominantly entail odors created by the bacterial breakdown of sewage in wastewater. Odor-causing substances that commonly occur in wastewater consist of both organic and inorganic compounds. The compounds usually arise from biological activity in the wastewater collection and treatment system. The odor-causing compounds generally associated with wastewater collection and treatment systems are hydrogen sulfide, ammonia mercaptans, organosulfides, amines and small amounts of phenols, cresols, and esters.

The magnitude of air impacts depends on several factors, including the length of wastewater transport time, the type of treatment (aerobic vs. anaerobic), the design of the treatment facility, and proximity of receptors. Odors can occur at locations where the wastewater system vents to open air. Odor emissions are most likely to occur during warm weather and at points of turbulence within the collection and treatment processes.

With proper facility design, construction, and maintenance, odor generation associated with the project is expected to be minimal and manageable. Areas of odor generation in the upgraded and expanded facility will be managed to reduce odor potential in accordance with all applicable requirements and recommended procedures. As noted above, proper design, construction, and maintenance of the treatment facility should minimize odor impacts to surrounding residential and commercial receptors. Careful consideration of the full range of operational conditions, including low-flow conditions during "off peak" periods, will be important to ensure proper operation of the facility. The WWTP upgrade and expansion project is exempt from the requirement to submit a Notice of Construction Application as per Regulation I, Section 6.03(c)(93) since there will be no anaerobic digestion and no chlorine sterilization (Williams, personal communication, 2008).

Following the 1998 expansion, there were problems with odor at the WWTP; these odors were directly related to anaerobic conditions developing during the sludge thickening process. Aeration and Membrane Biothickener (MBT) were added to the sludge thickening process and the odor problem was eliminated.

In addition, in-house staff constructed odor controlling bio-filters for the head works and for the two aerated sludge holding tanks.

The following processes, both expanded existing and proposed new, have potential to cause nuisance odor problems on a temporary or episodic basis, if operational procedures are disrupted:

- Head Works and Solids Handling/Equalization: The existing head works will be expanded and one of the two existing SBR reactor tanks will be modified to be an equalization tank.
- Selected Activated Sludge (SAS) Reactor: One of two existing SBR reactor tanks will be converted to a SAS reactor.
- Membrane Bioreactor (MBR): A new MBR system will be constructed and installed in a new building.
- Aerobic Digestion/Sludge Thickener: Two new aerobic digesters will be constructed (the existing two sludge holding tanks will be eliminated). Aerobic digestion generally has less potential for odors than anaerobic digestion. A MBT sludge thickener will be included inside the tanks.

3.9.3 Mitigation

Construction-related mitigation includes measures to minimize the generation of dust during excavation, grading, and filling earth materials such as cleaning vehicles and watering exposed surfaces.

Operation-related mitigation includes measures to reduce the frequency and levels of odor generation at the WWTP, as well as emission of volatiles and aerosols. The following measures will be used to reduce or control odor-causing emissions:

- In-house staff have previously constructed odor controlling bio-filters for the head works and for the two aerated sludge holding tanks.
- Head works and Solids Handling Building: The expanded head works and solids handling building, will be equipped with an odor control system consisting of industry recommended air changes with blowers and biofilters.
- SAS Reactor: The SAS reactor is a large open concrete tank that will have aerobic, anoxic, and anaerobic zones for biological processing of wastewater. When operated properly, an SAS reactor will not produce odors. The City will install covers and an odor control system.
- MBR: It is not anticipated that odors will be problematic within the membrane basins, due to the upstream treatment processes. The membrane tanks will be open concrete tanks, and will have removable covers. An odor control system could be added in the unlikely event that odor problems arise during operation.
- Aerobic Digestion/Sludge Thickener: The new aerobic digesters will be equipped with covers and an odor control system.

3.10 TRANSPORTATION

This section discusses the general transportation system in the City of Arlington that may affect, or be affected by, the proposed WWTP upgrades and expansion. Impacts to local street grids are discussed as well as potential mitigation measures.

3.10.1 Affected Environment

The project area is located in the City of Arlington. Access to the site is provided by Haller Avenue via West Avenue and West Burke Avenue/SR-530. The BCF expansion site is adjacent to 63rd Avenue NE, and is a paved truck route. Access to the expanded BCF area will be via the existing driveway on the west side of the parcel.

The project area is located near the Arlington Municipal Airport, but is not located on the flight line.

3.10.2 Environmental Consequences

Temporary traffic impacts would result during construction for approximately 18-24 months. Heavy construction trucks and personal vehicles moving to and from the construction site and onto the local street grid may cause temporary increases in traffic volumes and possible congestion in the area, specifically along Haller, West, and West Burke Avenues. The existing access point from West Burke Avenue would be retained.

Approximately 6,000 cubic yards of excavated material and approximately 2,000 cubic yards of clean fill material is anticipated to be hauled / brought to the site. Based on an average truck/trailer load of 18 cubic yards, approximately 444 heavy truck trips would be required for transport of material, occurring over an approximate 18-month period. As construction progresses, heavy trucks and/or trailers would also enter and exit the site to deliver or remove construction equipment and building materials. Traffic could be periodically stopped along access roads to allow truck and trailer access to the construction site. This could result in temporary delays for general purpose traffic along the roadways.

Operation of the WWTP is not expected to have significant traffic impacts. It is anticipated that the expanded WWTP facility will generate approximately 12 vehicular trips per day from employee access occurring during peak traffic hours, approximately 7:30 am and 4:00 pm. There will be approximately 25 vehicular trips for infrastructure support operations, sludge off-haul, and commercial deliveries occurring during normal business hours.

3.10.3 Mitigation

The following measures have been identified to reduce the adverse impacts on the transportation system in the vicinity of the WWTP site.

- Police, fire, ambulance, and local transit would be notified of any street blockages and provide flaggers or other traffic controls to maintain safe public access along adjacent streets.
- Impacted streets would be restored to pre-existing or better conditions.
- Parking for construction equipment and trucks vehicles would be provided on site to avoid impacts to adjacent streets.
- Compliance with City of Arlington permitting requirements for designated truck route and pedestrian safety requirements.

3.11 NOISE

3.11.1 Affected Environment

This section describes existing noise sources and regulations within the project area. Potential impacts that could occur with the construction and operation of the proposed WWTP upgrades and expansion, as well as potential mitigation measures, are discussed below.

3.11.1.1 Environmental Noise Sources

The human ear responds to a wide range of sound intensities. The decibel scale used to describe sound is a logarithmic rating system that accounts for the large differences in audible sound intensities. This scale accounts for the human perception of a doubling of loudness as an increase of 10 decibels (dBA). For example, a 70 dBA sound level will sound twice as loud as a 60 dBA sound level. People generally cannot detect differences of 1 dBA; under ideal laboratory conditions, differences of 2 or 3 dBA can be detected. A 5 dBA change would be expected to be perceived under normal conditions. As a reference, sound levels from normal conversation range between 55 and 65 dBA. Noise levels above 110 dBA are not tolerable and can result in hearing loss.

Factors affecting the impact that a given noise will have on a person include the frequency and duration of the noise, the absorbency of the ground and surroundings, and the distance of the receptor from the noise source. Receptors are people adjacent to treatment or conveyance facilities who would detect noise from the project. Sensitive receptors include relatively high densities of population, and/or populations that could have a higher level of sensitivity, such as hospitals, schools, daycare centers, or retirement centers. The type of receptor and the usual background noise levels also determine the degree of impact.

Construction workers are typically the most directly impacted by high levels of construction noise. The Washington Industrial Safety and Health Act (WISHA) sets Permissible Exposure Levels (PEL) for construction workers exposed to noise. The PEL for construction workers is a noise level up to 85 dBA for an eight-hour average exposure. Workers exposed to average noise levels above PEL must use hearing protection and must be enrolled in a Hearing Conservation Program.

3.11.1.2 Existing Regulatory Environment

State Noise Regulations

State and local governments have primary responsibility for controlling noise sources and regulating outdoor noise levels in the environment. The Washington Administrative Code (WAC) 173-600-040 establishes noise limits that vary according to the land use of the property where the noise source is located and the property receiving the noise.

Noise limits are administered by the Washington State Department of Ecology (Ecology). State noise limits vary depending on the Environmental Designation for Noise Abatement (EDNA) of the noise source and the receiving property. The limits apply at the property line. Class "A" covers residential uses, Class "B" covers commercial uses, and Class "C" covers all other uses on developed land. Table 3-8 shows Ecology's maximum permissible environmental noise levels based on the EDNA of a particular noise source. Construction noise is exempt under WAC 173-60-050 (3)(a).

Table 3-8 Ecology's Maximum Permitted Noise Levels (dBA)

Land Use of Noise Source	Land Use of Receiving Property			
	Residential		Commercial	Industrial
	Day	Night[a]		
Residential	55	45	57	60
Commercial	57	47	60	65
Industrial	60	50	65	70

[a] Maximums are 10 dBA lower than daytime levels for residential receiving property from 10 p.m. to 7 a.m.

Source: WAC 173-60-040

City of Arlington Noise Regulations

Noise levels at the WWTP site are regulated by Arlington Municipal Code Chapter 20.44.210. The City's standards are the same as or less restrictive than Ecology's standards, as identified and discussed above. In general, construction noise is exempt from maximum permissible levels during daytime hours. According to WAC 173-60-050, sounds originating from temporary construction sites due to construction activity are exempt from noise restrictions during daytime hours (7am to 10pm., 7 days a week).

3.11.1.3 Existing Sources of Noise

State Route-9, SR-530, and the existing WWTP are the primary sources of noise in the project area.

3.11.2 Environmental Consequences

Construction of the WWTP upgrades and expansion would occur over approximately 18-24 months. Construction-related noise impacts, however, would occur at higher levels during initial clearing, grading, and excavation activities. The treatment facility site is generally located away from residential neighborhoods, though a residence is located immediately to the north of the Utility Site. These residents could experience moderate noise impacts intermittently during the construction period.

The following sources of noise are expected during construction:

- Short-term intermittent noise from construction equipment is expected during construction.
- Diesel powered emergency generators will be tested and will create noise during normal business hours.
- Electric pumps and motors may cause low levels of noise but levels will not exceed those specified in the City code.
- Diesel motors such as front-end loaders and mobile mixers will be a source of noise during normal business hours.

Noise levels are expected to remain near current levels after construction. The WWTP is required to have an emergency generator. While use of the emergency generator would be infrequent (during power outages or other emergency conditions), noise from operation of the generator could exceed EDNA Class B noise limits at residential receivers, producing short-term impacts to nearby residents. Use of the emergency generator is considered exempt under emergency conditions from City of Arlington Municipal Code Chapter 20.44.210.

3.11.3 Mitigation

- Construction activities would typically occur during weekdays between permitted construction hours (City of Arlington – 7 a.m. to 10 p.m.). Any construction activities required outside of exempt daytime hours would require a variance, and the public would be notified as needed.
- Modern construction equipment would be used to minimize noise.
- Where practicable, noisy portable equipment, such as generators, would be located as far away from sensitive receptors as practical and would be muffled. Operation of the generator used for construction dewatering (if needed) would be required to meet allowable noise levels in the City's noise ordinance.

Operation

- Noise-attenuating features such as insulation, louvers, or sound-insulating enclosures could be provided for noise-producing equipment.
- Vibration mounts and over-vibration cut-out controls could be installed on equipment with a high level of vibration.

4.0 SUMMARY OF MITIGATION

Table 4-1 summarizes proposed mitigation measures developed to minimize impacts, as well as the implementing criteria for each of the resource areas analyzed in this report.

Table 4-1 Summary of Mitigation

Resource	Proposed Mitigation	Implementing Criteria and Codes
Land Use/Important Farmland/Formally Classified Lands	No mitigation measures have been developed at this time. Development of the proposed upgrades and expansion would comply with the City of Arlington permit process. Any mitigation measures identified during that process as conditions of the permit would be implemented.	City of Arlington Municipal Code: AMC Title 20, Land Use Code Chapters 90.46, 90.48, 43.20 RCW; Chapters 173-216, 173-224, 246-271 WAC Farmland Protection Policy Act, Pub. L. 97-98
Floodplains and Shorelines	No impacts to floodplains or adjacent floodplain properties are anticipated as a result of the WWTP upgrades and expansion. Accordingly, no mitigation measures are recommended.	City of Arlington Municipal Code: AMC Chapter 20.64 Floodways, Floodplains, Drainage, and Erosion; City of Arlington Municipal Code; AMC Chapter 20.92, Shoreline Management; Arlington Shoreline Master Program Floodplain Management, EO 12148 CZMA Pub. L. 92-583, as amended
Water Quality	During construction, BMPs will be employed to minimize the amount of erosion and sedimentation leaving the site during rainfall events. The BMPs will be consistent with Stormwater Management Manual for Western Washington (Ecology, 2005), and may include the use of silt fences, straw bales, and geonetting. Exposed soil areas and stockpiles will be covered. Construction involving soil disturbance would be performed during the dry season to the extent possible. Clearing will occur only in areas of active construction. Following construction, the site will be revegetated promptly. Chemical handling and vehicle fueling will be conducted in contained areas on site. Any spills will be cleaned promptly to minimize the potential for runoff. During operation, compliance with permit conditions dictated by the NPDES and TMDL limitations would ensure that no significant impacts to surface water quality occur. Additional mitigation measures are provided below. • To minimize turbidity, all water from dewatering operations would be routed through sediment removal facilities as needed prior to eventual discharge either to infiltration trenches or the plant's on-site storm system. • Discharge of dewatering water would comply with construction NPDES standards and permit requirements. • A quality assurance plan (QAPP) will be submitted to Ecology detailing the City's plan for conducting water quality monitoring and reporting. If permit standards are not being met, treatment would be augmented to remove additional pollutants to meet the standards.	City of Arlington Municipal Code: AMC; Chapter 20.88 Part VII, Streams, Creeks, Rivers, Lakes and other Surface Waters. City of Arlington Municipal Code: AMC Chapter 20.64 Floodways, Floodplains, Drainage, and Erosion; City of Arlington Municipal Code: AMC Chapter 20.88 Part IX Aquifer Recharge. Department of Ecology: Stormwater Management Manual for Western Washington Chapter 173-201A-200 WAC, 2003 Rule Safe Drinking Water Act, Pub. L. 93-523

Resource	Proposed Mitigation	Implementing Criteria and Codes
	• Reliability and redundancy would be included in mechanical and electrical equipment at the WWTP to prevent any untreated or partially treated water from leaving the facility. • Stormwater generated from areas where wastewater and solids are handled would be collected and treated in the WWTP.	
Biological Resources	• Construction BMPs and a Stormwater Pollution Prevention Plan would be implemented to minimize sedimentation of water bodies. • Construction BMPs, including spill prevention and containment measures to be included in the project SWPPP, would be used to reduce the risk of accidental spills and respond to a spill should one occur • Treatment of construction dewatering discharges would be provided, such as sediment removal or filtration, as necessary before the release of such water. • Construction areas would be clearly identified to minimize habitat disruption. • Disturbed areas would be restored to the maximum extent possible. • Water quality monitoring would be conducted to ensure that the highly treated water discharged meets or exceeds water quality standards. • Construction areas would be clearly identified to minimize habitat disruption. • Disturbed areas would be restored to the maximum extent possible. • Water quality monitoring would be conducted to ensure that the highly treated water discharged meets or exceeds water quality standards. • Best Management Practices (BMPs) will be implemented during construction to minimize the potential for erosion and chemical spills.	City of Arlington Municipal Code: AMC; Chapter 20.88 Part IV, Fish and Wildlife Conservation Areas ESA, Pub. L. 93-205, as amended
Wetlands	Impacts to wetlands are not anticipated; therefore, mitigation measures have not been developed.	City of Arlington Municipal Code: AMC; Chapter 20.88 Part VIII, Wetlands. Protection of Wetlands, EO 11990
Cultural Resources	• Data recovery of historical site 45SN409 was performed as mitigation as described above. Archaeological excavation was conducted under DAHP Archaeological Excavation Permit No. 07-26. Curation of artifacts and reporting are provisions of the permit. • An Inadvertent Archaeological Discovery Plan (IADP) has been developed for the project and will become part of the contractor agreement. In the event that any archaeological deposits or human remains are inadvertently discovered during construction excavation for any component of the proposed project, ground disturbing activity will be halted and the Stillaguamish Tribe, Tulalip Tribe of Indians, the DAHP, and a professional archaeologist will be immediately notified. Treatment of archaeological deposits or human remains would be coordinated through consultation between these parties.	Chapters 27.44, 27.53 RCW; National Historic Preservation Act: 16 U.S.C. 470; Native American Graves Protection and Repatriation Act: 25 U.S.C. 3001 Consultation with Stillaguamish Tribe, Tulalip Tribe and DAHP.

Resource	Proposed Mitigation	Implementing Criteria and Codes
Visual Quality	• Construction BMPs would be used to minimize visual impacts along the conveyance route (e.g., minimizing areas of disruption, covering excavated materials, and keeping construction areas clean). • Treatment functions would be enclosed in structures where possible. • Lighting would be low-level and designed to comply with Illumination Engineering Society of North America requirements such that no direct beam illumination would leave the facility site.	
SocioEconomic /Environmental Justice	• Grant funding will continue to be sought to further reduce costs to Arlington residents served by the wastewater treatment system.	Executive Order 12898
Air Quality	Construction-related mitigation includes measures to minimize the generation of dust during excavation, grading, and filling earth materials such as cleaning vehicles and watering exposed surfaces. Operation-related mitigation includes measures to reduce the frequency and levels of odor generation at the treatment plant, as well as emission of volatiles and aerosols. The following measures will be used to reduce or control odor-causing emissions: • In-house staff have previously constructed odor controlling bio-filters for the head works and for the two aerated sludge holding tanks. • Head works and Solids Handling Building: The expanded head works and solids handling building, will be equipped with an odor control system consisting of industry recommended air changes with blowers and biofilters. • SAS Reactor: The SAS reactor is a large open concrete tank that will have aerobic, anoxic, and anaerobic zones for biological processing of wastewater. When operated properly, an SAS reactor will not produce odors. The City will install covers and an odor control system. • MBR: It is not anticipated that odors will be problematic within the membrane basins, due to the upstream treatment processes. The membrane tanks will be open concrete tanks, and will have removable covers. An odor control system could be added in the unlikely event that odor problems arise during operation. • Aerobic Digestion/Sludge Thickener: The new aerobic digesters will be equipped with covers and an odor control system.	EPA National Ambient Air Quality Standards (NAAQS); Puget Sound Clean Air Agency (PSCAA) regulations consistent with U.S. Clean Air Act (42 U.S.C. 7401) and Washington Clean Air Act (RCW 70.94).
Transportation	• Police, fire, ambulance, and local transit would be notified of any street blockages and provide flaggers or other traffic controls to maintain safe public access along adjacent streets. • Impacted streets would be restored to pre-existing or better conditions. • Parking for construction equipment and trucks vehicles would be provided on site to avoid impacts to adjacent streets. • Compliance with City of Arlington permitting requirements for designated truck route and pedestrian safety requirements.	City of Arlington Comprehensive Plan, Transportation Element;

Resource	Proposed Mitigation	Implementing Criteria and Codes
Noise	• Construction activities would typically occur during weekdays between permitted construction hours (City of Arlington – 7 a.m. to 10 p.m.). Any construction activities required outside of exempt daytime hours would require a variance, and the public would be notified as needed. • Modern construction equipment would be used to minimize noise. • Where practicable, noisy portable equipment, such as generators, would be located as far away from sensitive receptors as practical and would be muffled. Operation of the generator used for construction dewatering (if needed) would be required to meet allowable noise levels in the City's noise ordinance. • Noise-attenuating features such as insulation, louvers, or sound-insulating enclosures could be provided for noise-producing equipment. • Vibration mounts and over-vibration cut-out controls could be installed on equipment with a high level of vibration.	City of Arlington Municipal Code: AMC Chapter 20.44.210; RCW 70.107.030 WAC 173-60-050 (3)(a).

5.0 AGENCY CORRESPONDENCE

This section describes the coordination and consultation between the City of Arlington and local tribes; and federal, state, and local agencies. Written correspondence between the City and these parties is included in Exhibit 2 of this document.

5.1 WASHINGTON DEPARTMENT OF ARCHAEOLOGY AND HISTORIC PRESERVATION (DAHP)

A letter was sent by the City of Arlington on May 27, 2008 to Rob Whitlam, State Archaeologist, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. The Final Data Recovery Report (NWAA, 2008) was sent to DAHP on June 13, 2008. The City is awaiting DAHP's review of the Final Data Recovery Report for compliance with DAHP Excavation Permit 07-26. Rob Whitlam indicated on June 18, 2008 that if their completed review determines that permit requirements are fulfilled, there will be no further DAHP comment on the project. The City provided an updated site form and proof of curation to assist DAHP in their review of the Final Data Recovery Report (at Stephanie Kramer's request on June 19, 2008).

5.2 STILLAGUAMISH TRIBE

A letter was sent by the City of Arlington on May 27, 2008 to Shawn Yanity, Fisheries Manager and Tribal Chair and Victoria Yeager, Cultural Committee, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. The City followed-up with a phone call to Victoria Yeager on June 16, 2008 and again on June 23, 2008. Victoria Yeager e-mailed on June 23, 2008 and stated that the Stillaguamish Tribe is pleased with both the WWTP Upgrades and Expansion project and the stormwater wetland project (see Exhibit 2).

Earlier in project planning during development of the cultural resource assessment, the City through its cultural resources consultant (NWAA) contacted the Stillaguamish Tribe to request information regarding culturally sensitive areas on or near the project. NWAA sent letters to Edward Reser, Cultural Resources Committee on September 7, 2006, explaining the proposed project fieldwork effort. The letters invited the Tribe to contact NWAA with any questions or concerns about heritage resources in or near the proposed project and invited tribal representatives to accompany archaeologists during field reconnaissance. The Stillaguamish Tribe was notified and informed of the archaeological mitigation work that was performed at historic site 45SN409 per DAHP Excavation Permit 07-26. The Stillaguamish Tribe was also invited to a pre-excavation meeting at the Utilities Administration office; no representatives from the Tribe attended.

A letter was sent by Shawn Yanity on March 2, 2007 to Senator Patty Murray stating the Tribes support of the proposed WWTP project, and specifically the project's improvement to effluent quality entering the Stillaguamish River (see Exhibit 2).

5.3 TULALIP TRIBE

A letter was sent by the City of Arlington on May 27, 2008 to Hank Gobin, Cultural Resources Director, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. An e-mail response was received from Kurt Nelson, Fish and Water Resources Scientist on June 12, 2008 (see Exhibit 2). The City was directed to contact Richard Young and/or Danny Simpson. Messages were left for both persons; there was no return call. Though no verbal comments were received, Kurt Nelson's June 12, 2008 email stated support of the system upgrade to a membrane bioreactor.

Earlier in project planning during development during development of the cultural resource assessment, the City, through its cultural resources consultant (NWAA) consulted with the Tulalip Tribes to request information regarding culturally sensitive areas on or near the project. NWAA sent letters to Hank Gobin on September 7, 2006, explaining the proposed project fieldwork effort. The letter invited the Tribes to contact NWAA with any questions or concerns about heritage resources in or near the proposed project and invited tribal representatives to accompany archaeologists during field reconnaissance. The Tulalip Tribe was notified and informed of the archaeological mitigation work that was performed at historic site 45SN409 per DAHP Excavation Permit 07-26. The Tulalip Tribe was also invited to a pre-excavation meeting at the Utilities Administration office; no representatives from the Tribe attended.

5.4 U.S. FISH AND WILDLIFE SERVICE (USFWS)

A letter was sent by the City of Arlington on May 27, 2008 to John Grettenberger, Western Washington Field Office, Section 7 Branch, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. The City followed-up with a phone call to John Grettenberger on June 18, 2008. John Grettenberger called the City on June 19, 2008 and stated that the USFWS usually does not comment on state projects, but that USFWS, in general, is supportive of cleaner wastewater treatment technology as proposed.

During development of this environmental report, ESA Adolfson consulted with USFWS to request a list of federally listed species under USFWS jurisdiction that may occur in the vicinity of the proposed project (see Exhibit 2).

5.5 U.S. NATIONAL MARINE FISHERIES SERVICE (NMFS)

A letter was sent by the City of Arlington on May 27, 2008 to Tom Sibley, Branch Chief, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. The City followed-up with a phone call to Tom Sibley on June

18, 2008. Mr. Sibley stated that NOAA Fisheries does not usually comment on such projects unless requested to do so by another federal agency. As such, no comments were received.

During development of this environmental report, ESA Adolfson consulted with NMFS to request a list of federally listed species under NMFS jurisdiction that may occur in the vicinity of the proposed project (see Exhibit 2).

5.6 NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

A letter was sent by the City of Arlington on May 27, 2008 to Gale Meyer, District Conservationist, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. Chuck Natasuhara called June 4, 2008 stating that Natural Resources has no comment since all construction is occurring within the plant footprint. Mr. Natsuhara followed up the conversation with a letter stating the same (see Exhibit 2).

5.7 U.S. ARMY CORPS OF ENGINEERS (CORPS)

A letter was sent by the City of Arlington on May 27, 2008 to Jonathon Smith, Snohomish County Regulatory Staff Contact, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. The City followed-up with a phone call to Jonathon Smith on June 18 and June 19. On June 19, Jonathon Smith stated that he had no comment except that if there is going to be any work (fill or pipeline) within the ordinary high water mark then an application for a Section 404 or Section 10 permit would be required.

5.8 U.S. ENVIRONMENTAL PROTECTION AGENCY

A letter was sent by the City of Arlington on May 27, 2008 to the EIS Review Coordinator for EPA Region 10, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. The City called June 18, 2008 to EPAs Region 10 office and was directed to Theo Mobabaliye. The City faxed him a copy of the original letter as requested. The City followed-up with phone calls on June 19 and June 23. Elaine Summers of USEPA called the City and stated that EPA does not usually comment on a project's SERP process or SEPA process, unless specifically requested to, or because of federal infraction. She also suggested the City consider contacting the Washington State Department of Fish and Wildlife (WDFW), in addition to the agencies the City had already contacted. In response to her comment, the City contacted WDFW (see Section 5.11). Overall, the comments from Elaine Summers were supportive of the project and pleased that the City was being proactive and soliciting input from so many agencies.

5.9 FEDERAL EMERGENCY MANAGEMENT AGENCY

A letter was sent by the City of Arlington on May 27, 2008 to the EIS Review Coordinator for FEMA, Federal Regional Center, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. The City followed-up with a phone call to FEMA, Federal Regional Center, on June 18, 2008 and again on June 19, 2008. John Graves, FEMA, called the City on June 24 and stated that, if the WWTP is classified as a critical infrastructure, then FEMA wants the design and construction of the WWTP upgrades and expansion to be out of the 100-year or 500-year floodplain if required by local floodplain management plans and policies. Based on Arlington Municipal Code (AMC) 20.64.240 Critical Facilities, the City regulates the construction of critical facilities if located within the Special Flood Hazard Area (100-year floodplain). The WWTP upgrades and expansion would occur outside the 100-year floodplain; therefore, comments by FEMA are addressed.

The Arlington Municipal Code is as follows for critical infrastructure:

> *AMC 20.64.240 Critical Facility – Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (100-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Flood-proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible*

While a small portion of the west side of the WWTP site might be on the fringe of the 100-year floodplain, the WWTP main processes, instrumentation, and critical infrastructure are outside the 100-year floodplain.

5.10 WASHINGTON DEPARTMENT OF ECOLOGY (ECOLOGY)

Ecology is the primary agency with authority to review and approve the Facilities Plan and supporting environmental documentation. Accordingly, consultation with Ecology has been ongoing.

During development of this environmental report, the City consulted with Ecology regarding the process and format of the environmental review to insure compliance with the State Environmental Policy Act (SEPA) and the State Environmental Review Process (SERP).

In addition, a letter was sent by the City of Arlington on May 27, 2008 to Loree Randall, Federal Project Coordinator, and to Kevin Fitzpatrick, Water Quality Program, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation.

An e-mail response was received from Jessica Moore, Federal Permit Unit on June 13, 2008. The following comments were provided: (Exhibit 2).

1) Coastal Zone Management Act Consistency: If the project will require a federal permit or approval, the project may need to demonstrate consistency with the Washington's Coastal Zone Management program. If necessary, there is a form to fill out indicating compliance with the Program's enforceable policies (Shoreline Management Act, Clean Water Act, Clean Air Act, SEPA, etc.). If no federal permit or approval is required, but the project will utilize federal funds, a determination of consistency is still required.

2) If the project will impact wetlands or require in-water (below the ordinary high water mark) work, a Section 401 Water Quality Certification may be necessary. The proposal does not indicate that either resource will be impacted, but if the project plans change or the footprint needs to be extended into either resource, please contact the Army Corps of Engineers and the Federal Permit Manager at Ecology's Northwest Regional Office.

3) If the proposal includes work within the shoreline jurisdiction (within 200' of the river), please contact your local community development office to determine permit requirements.

As a result of this comment, City submitted a completed CZM Form (for federally funded projects) to Ecology on July 3, 2008 for review and consistency approval. A letter dated July 7, 2008 was received from Mr. Brenden McFarland, Department of Ecology Section Manager, stating that the project is consistent with Washington's Coastal Zone Management Program (see Exhibit 2). Comment (2) and (3) do not apply.

Karen Burgess, Department of Ecology Water Quality, called on June 19, 2008 stating that she was following up for Kevin Fitzpatrick and that Ecology's Water Quality Section at Northwest Regional Office is satisfied with the progress the City has made to date and has no objection to the City proceeding with the design and construction of the proposed upgraded and expanded WWTP. Mitigation measures have been addressed during previous review of the Engineer Report. Ecology's Water Quality Program has no further comments. This was also followed up in a June 20, 2008 email (see Exhibit 2).

5.11 WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW)

During development of this environmental report, ESA Adolfson consulted with WDFW to obtain current Priority Habitat and Species (PHS) information for the vicinity of the proposed project area (Exhibit 2). A letter was sent by the City of Arlington on June 23, 2008 to Ginger Holser and David Brock, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. The City followed-up by phone and discussed the project with Ginger Holser. She reported that David Brock is no longer the Arlington area biologist and that she would coordinate comments. She stated that since the project does not include work in the river, WDFW will likely have no comment. Ms. Holser emailed comments on June 24, 2008 (see Exhibit 2).

5.12 PUGET SOUND CLEAN AIR AGENCY (PSCAA)

A letter was sent by the City of Arlington on May 27, 2008 to Steve Van Slyke, Supervisory Engineer, describing the project location, components and background. The letter also requested comments regarding any issues of concern or information that should be included in the environmental documentation. Comments were received from Claude Williams, P.E., Air Pollution Engineer during a phone conversation with the City on June 3, 2008 and in an e-mail on June 3, 2008 (Exhibit 2). The e-mail comments reiterate that the Arlington WWTP upgrade and expansion project is exempt from the requirement to submit a Notice of Construction Application as per Regulation I, Section 6.03(c)(93) since there will be no anaerobic digestion and no chlorine sterilization.

A summary of the SERP Tribe and Agency Consultation is shown in Table 5-1.

Summary Table of SERP Tribal and Agency Documentation

Agency	Dates Contacted	Comments	Resolution
Washington Department of Archaeology and Historic Preservation (DAHP) Rob Whitlam, (360) 586-3080 *directed to Stephanie Kramer	5/27/08, sent letter 6/13/08, sent Final Mitigation Report 6/18/08, follow-up phone call with Rob Whitlam 6/19/08, phone call to Stephanie Kramer; sent updated site form and proof of curation.	Rob Whitlam indicated on June 18, 2009 that if DAHP's completed review determines that permit requirements are fulfilled, there will be no further DAHP comment on the project.	DAHP is reviewing the Privy Excavation Final Mitigation Report for compliance with DAHP Excavation Permit 07-26; if permit requirements are fulfilled, DAHP stated they will have no further comment.
Stillaguamish Tribe Victoria Yeager, (360) 652-7362	5/27/08, sent letter 6/16/08, follow-up phone call 6/23/08, follow-up phone call	Victoria Yeager indicated on June 23, 2008 that the Stillaguamish Tribe is pleased with the WWTP Upgrades and Expansion Project (see Exhibit 2). Letter in support of the project was received from Shawn Yanity on March 2, 2007 (see Exhibit 2).	No further action needed.
Tulalip Tribe Hank Gobin, (800) 869-8287 *directed to Kurt Nelson, Richard Young, Danny Simpson	5/27/08, sent letter 6/16/08, Follow-up phone call 6/19/08, follow-up phone call to Richard Young, Danny Simpson, and Kurt Nelson	Kurt stated on 6/19/08 that he had not had time to research the issue yet and that he will try to speak with Richard Young regarding the request for comment.	No comments were received.
US Fish and Wildlife	5/27/08, sent letter	John Grettenberger indicated on 6/19/08 that USFWS does not provide comment unless directed to do so by	No comments were received.

Agency	Dates Contacted	Comments	Resolution
Service John Grettenberger, (360) 753-9440	6/18/08, follow-up phone call	another federal agency, but that USFWS, in general is supportive of cleaner wastewater treatment technology as proposed.	USFWS species listing for the project area was consulted for development of the ER (see Exhibit 2).
NOAA Fisheries Tim Sibley, (2060 526-4446	5/27/08, sent letter 6/18/08, follow-up phone call	Tom Sibley stated on 6/18/08 that NOAA Fisheries does not comment on such projects unless requested to do so by another federal agency.	No comments received. NOAA Fisheries species listing for the project area was consulted for development of the ER (see Exhibit 2).
National Resources Conservation Service Gale Meyer, (425) 334-2828	5/27/08, sent letter	Chuck Natasuhara called 6/4/08 and stated that NRCS has no comment since all construction is occurring within the plant footprint.	No further action needed.
US Army Corps of Engineers Jonathon Smith, (206) 764-3495	5/27/08, sent letter 6/18/08, follow-up phone call 6/19/08, follow-up phone call	Jonathon Smith stated on 6/19/08 that he had no comment except that if there is going to be any work (fill or pipeline) in the ordinary high water mark an application would need to be submitted for a Section 404 or Section 10 permit.	Project does not include work below the ordinary high water mark. No further action needed.
US EPA EIS Review Coordinator, (206) 553-6322 *directed to Theo Mobabaliye/re-directed to Elaine Summers	5/27/08, sent letter 6/18/08, follow-up phone call 6/19/08, follow-up phone call 6/23/08, follow-up phone call	Elaine Summers stated on 6/23/08 that the USEPA does not comment, unless specifically requested because of a federal infraction. Supportive of project and pleased with City's proactive communications. Suggested WDFW be contacted.	The City contacted WDFW to solicit input and comment per the EPAs comment. No further action needed.

Agency	Dates Contacted	Comments	Resolution
Federal Emergency Management Agency EIS Review Coordinator, (425) 487-4600 *directed to John Graves	5/27/08, sent letter 6/18/08, follow-up phone call 6/19/08, follow-up phone call	John Graves stated on 6/24/08 that if the WWTP is classified as a critical infrastructure then FEMA requests that the design and construction of the upgrades and expansion located outside of the floodplain as required by local ordinance.	WWTP upgrades and expansion are considered critical facilities under City of Arlington Municipal Code (AMC). Based on AMC 20.64.240, the City regulates the construction of critical facilities if located within the Special Flood Hazard Area (100 year floodplain). The WWTP upgrades and expansion will occur outside the 100 year floodplain. No further action needed.
Ecology, Shorelands Loree Randall, (360) 407-6068 *directed to Jessica Moore	5/27/08, sent letter	Jessica Moore provided comments in an email on 6/13/08 regarding 1) Coastal Zone Management Act Consistency, 2) Section 401 Water Quality Certification requirements, and 3) shoreline jurisdiction. See Exhibit 2 for the specific comments.	CZM certification application was submitted to Ecology, per Ecology's comment. CZM consistency approval letter issued 7/7/08 (see Exhibit 2). The proposed project does not impact wetlands or involve in-water work and is located outside of the shoreline jurisdiction. No further action needed.
Ecology, Water Quality Kevin Fitzpatrick, (425) 649-7033 *directed to Karen Burgess	5/27/08, letter sent 6/18/08, follow-up phone call	Karen Burgess stated in an email on 6/20/08 that Ecology's Water Quality Section is satisfied with the progress the City has made to date and as no objection to the City proceeding with the design and construction of the proposed upgraded and expanded WWTP. Mitigation measures have been addressed during previous review of the Engineering Report. See Exhibit 2 for the specific comments.	No further action needed.

Agency	Dates Contacted	Comments	Resolution
Puget Sound Clean Air Agency Steve Van Slyke, (206) 689-4052 *directed to Claude Williams	5/27/08, sent letter 5/30/08, phone call	Claude Williams stated on 5/30/08 that the WWTP (PSCAA registration #11058) is exempt from the requirements to submit a Notice of Construction Application per Regulation I, Section 6.03(c)(93) because is does not have anaerobic digestion or chlorine sterilization (confirmed in email, Exhibit 2).	No further action needed.
Washington Department of Fish and Wildlife Ginger Holser, (425) 379-2305	6/23/08, sent letter 6/24/08, follow-up phone call	Ginger Holser stated by phone and by email on 6/23/08 that Phase 1 work would not require a Hydraulic Project Approval (HPA) from WDFW. The future Phase 2 work would require a HPA if the outfall is replaced (see Exhibit 2).	No further action needed.

6.0 EXHIBITS/MAPS

6.1 Exhibit 1 - Figures

6.2 Exhibit 2 – SERP Tribe and Agency Correspondence

6.1 EXHIBIT 1 – FIGURES

Figure 1. Vicinity Map

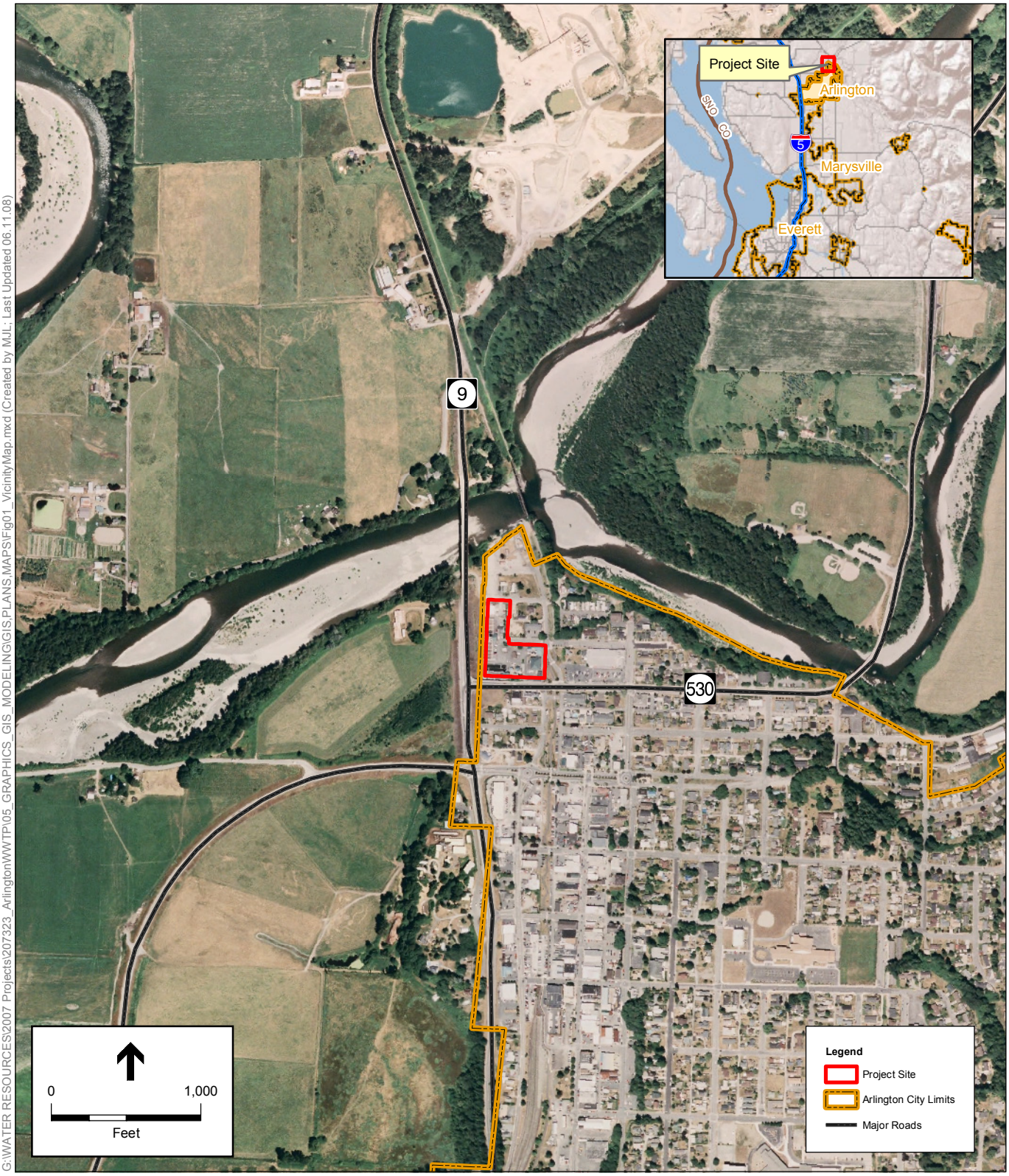
Figure 2. Arlington Wastewater Service Area

Figure 3. Existing Treatment Plant Site Facilities

Figure 4. Proposed Treatment Plant Site Layout

Figure 5. Floodplains and Topography

Figure 6. Hydrology



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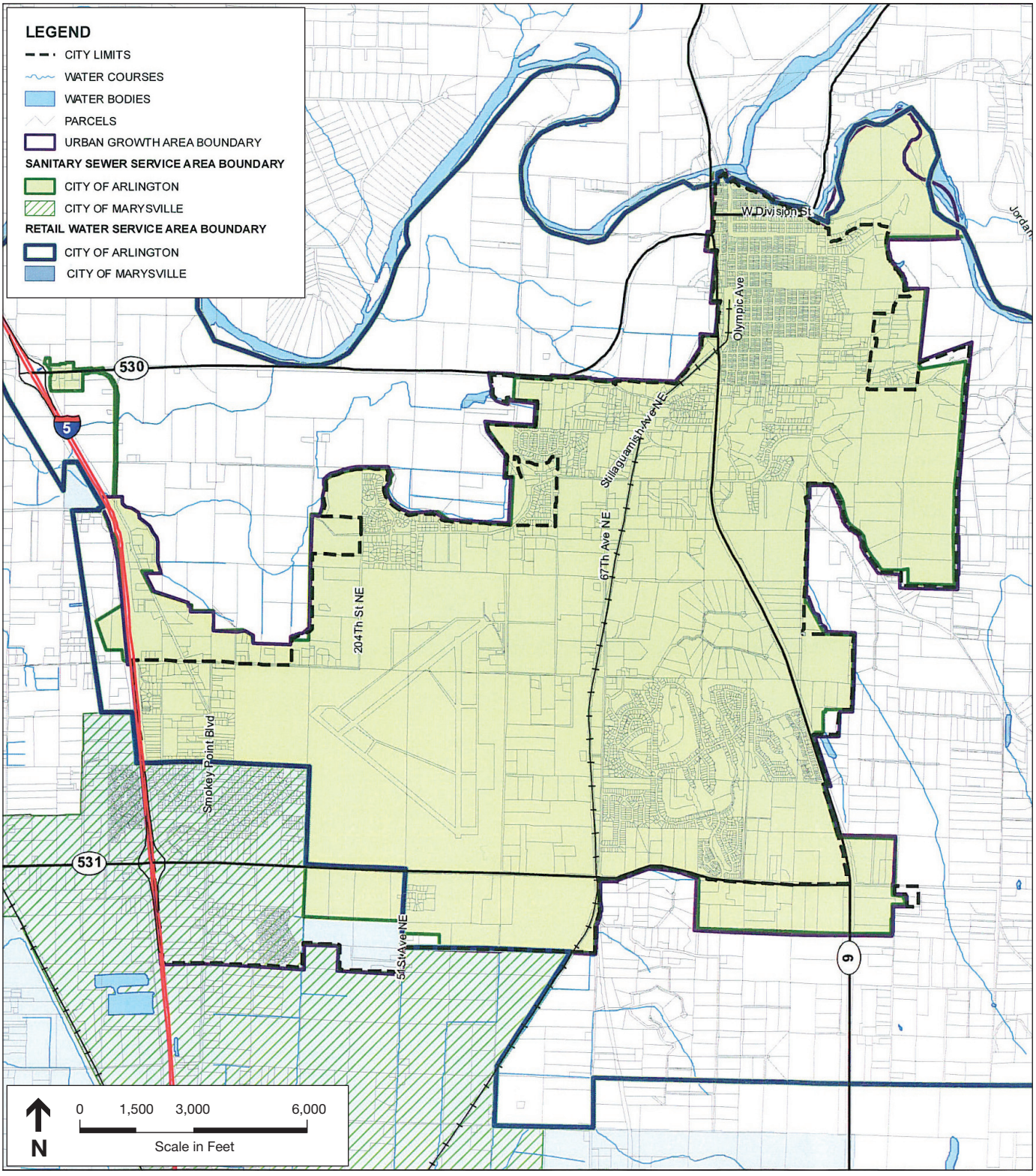
Arlington Wastewater Treatment Plant Upgrades and Expansion . 207323

SOURCE: Snohomish County, 2007; USDA, 2006 (NAIP Imagery)

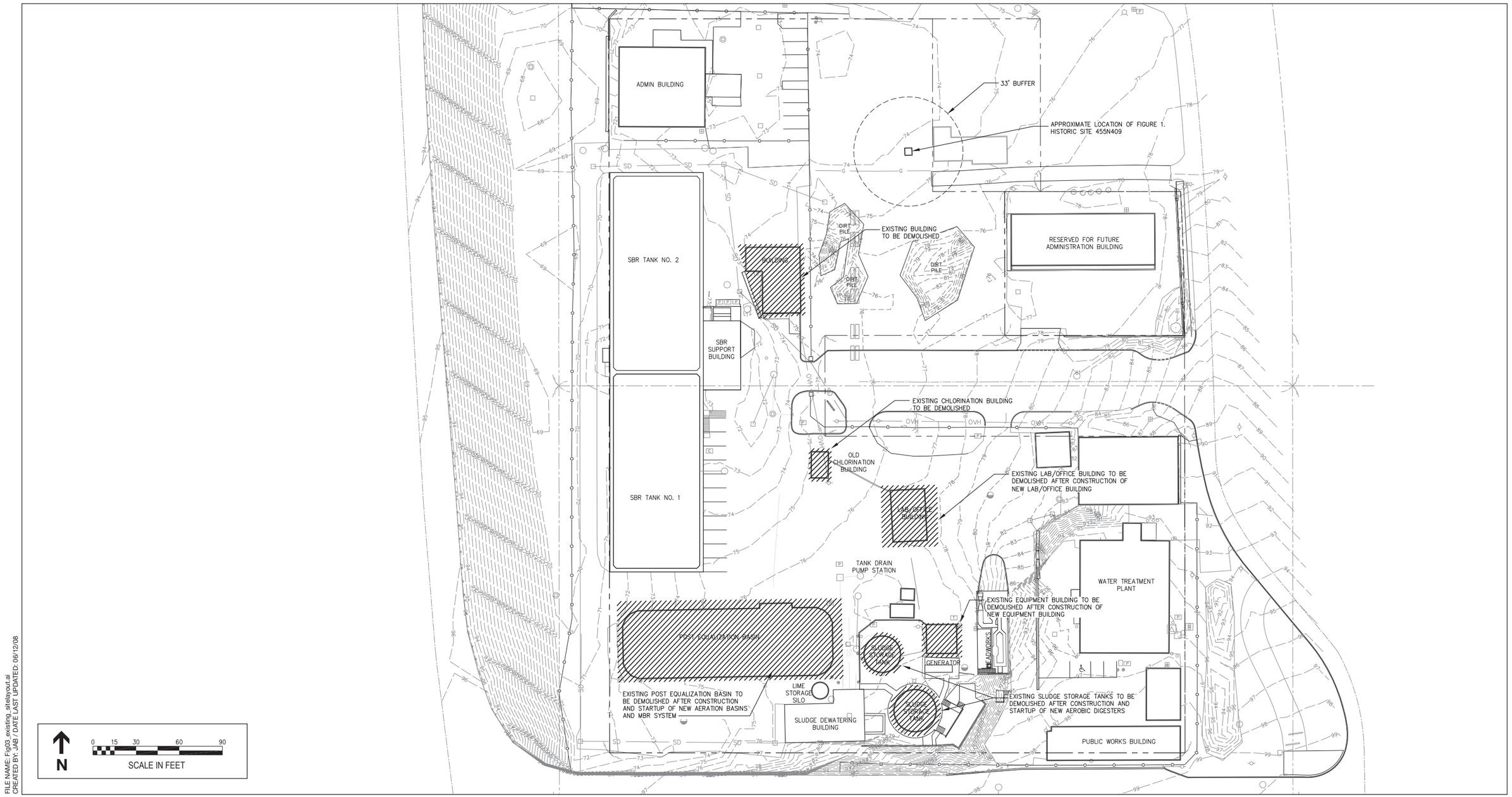
Figure 1
Vicinity Map
Snohomish County, Washington



SOURCE: City of Arlington, 2008.

Arlington Wastewater Treatment Plant Upgrades and Expansion . 207323

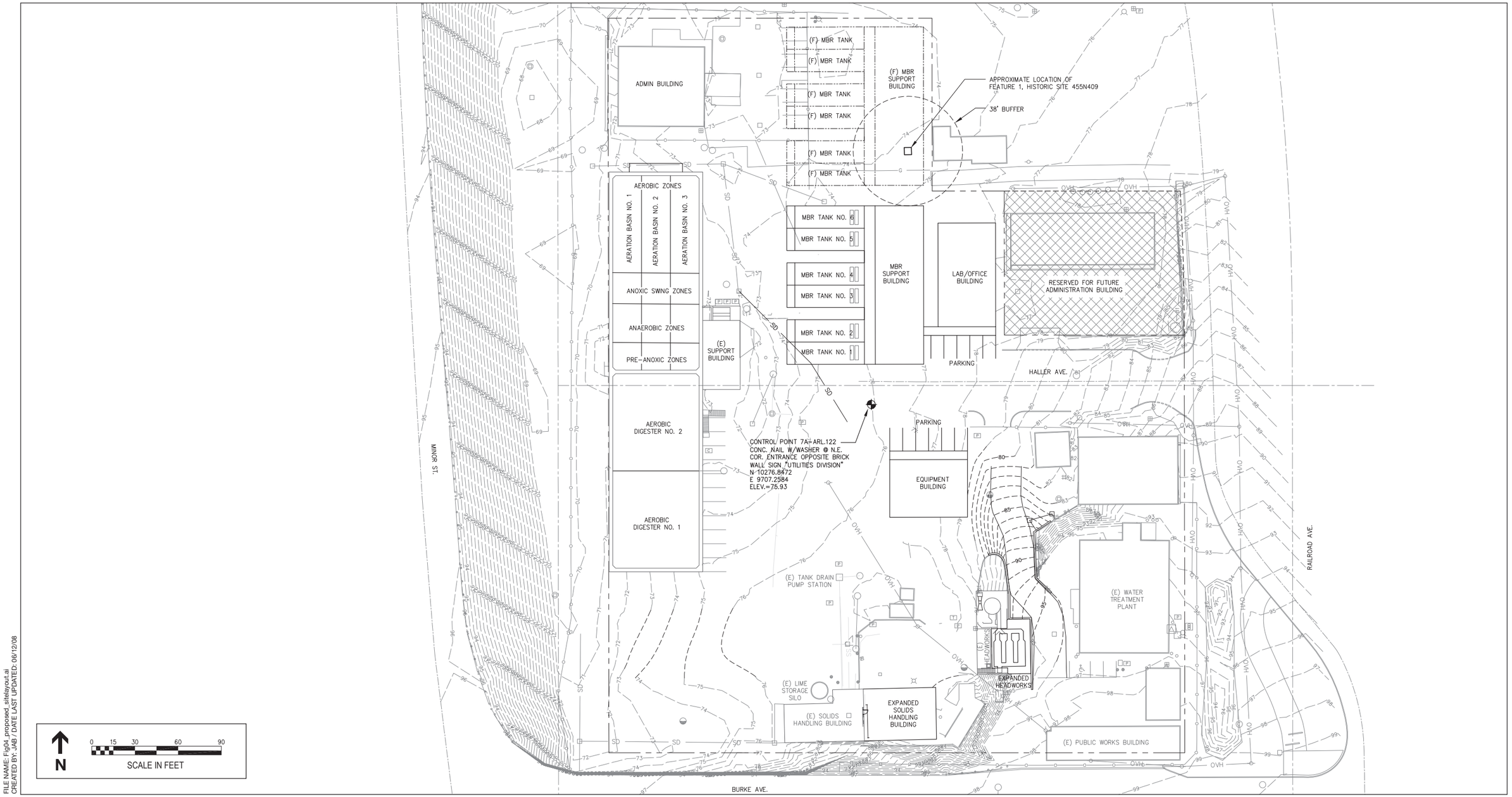
Figure 2
Wastewater Service Area
Arlington, Washington



FILE NAME: Fig03_existing_sitelayout.ai
CREATED BY: JAB / DATE LAST UPDATED: 06/12/08

SOURCE: City of Arlington, 2007.

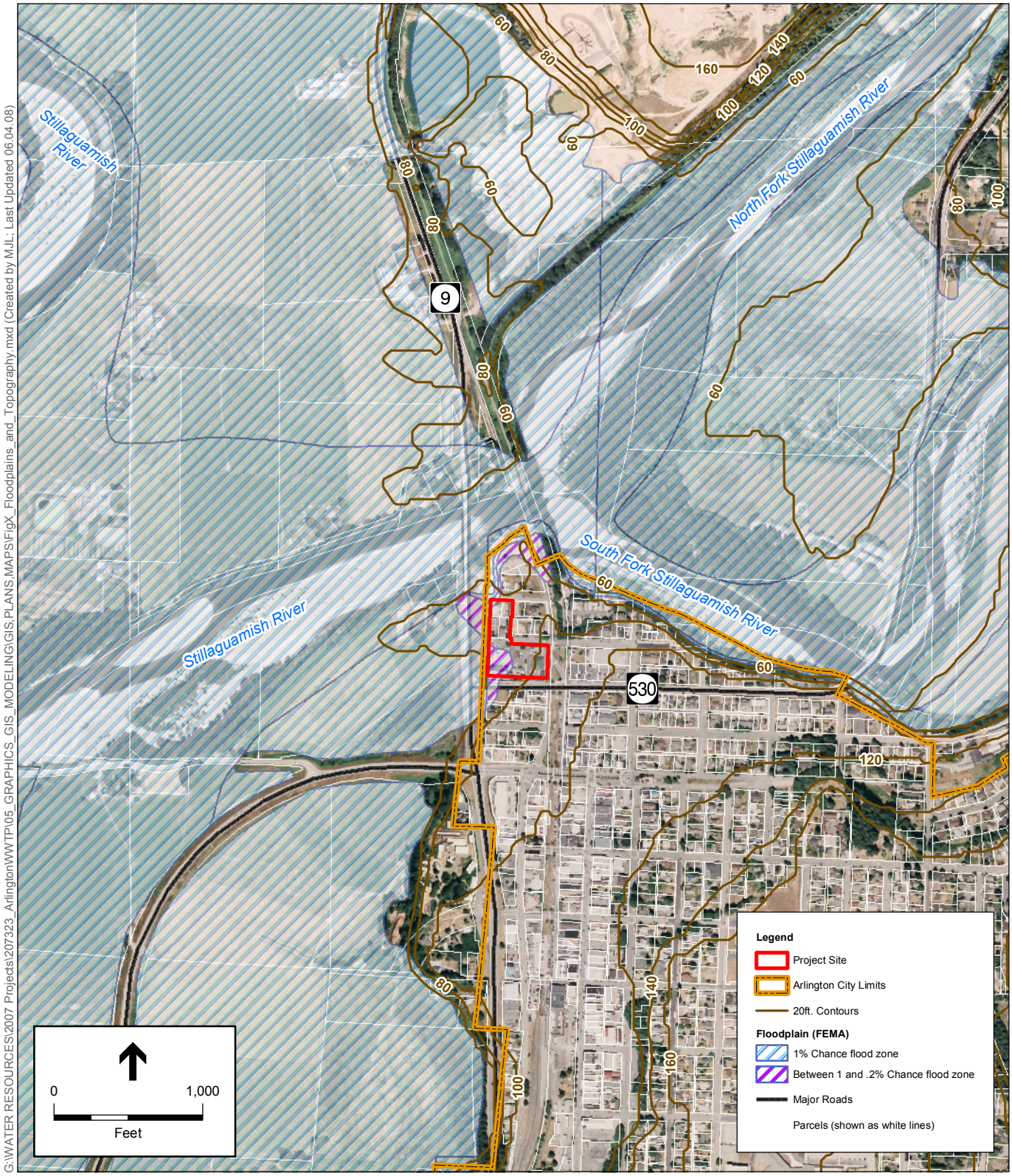
Figure 3
Existing Treatment Plant Site Layout
Arlington, Washington



FILE NAME: Fig04_proposed_sitelayout.ai
CREATED BY: JAB / DATE LAST UPDATED: 06/12/08

SOURCE: City of Arlington, 2007.

Figure 4
Proposed Treatment Plant Site Layout
Arlington, Washington



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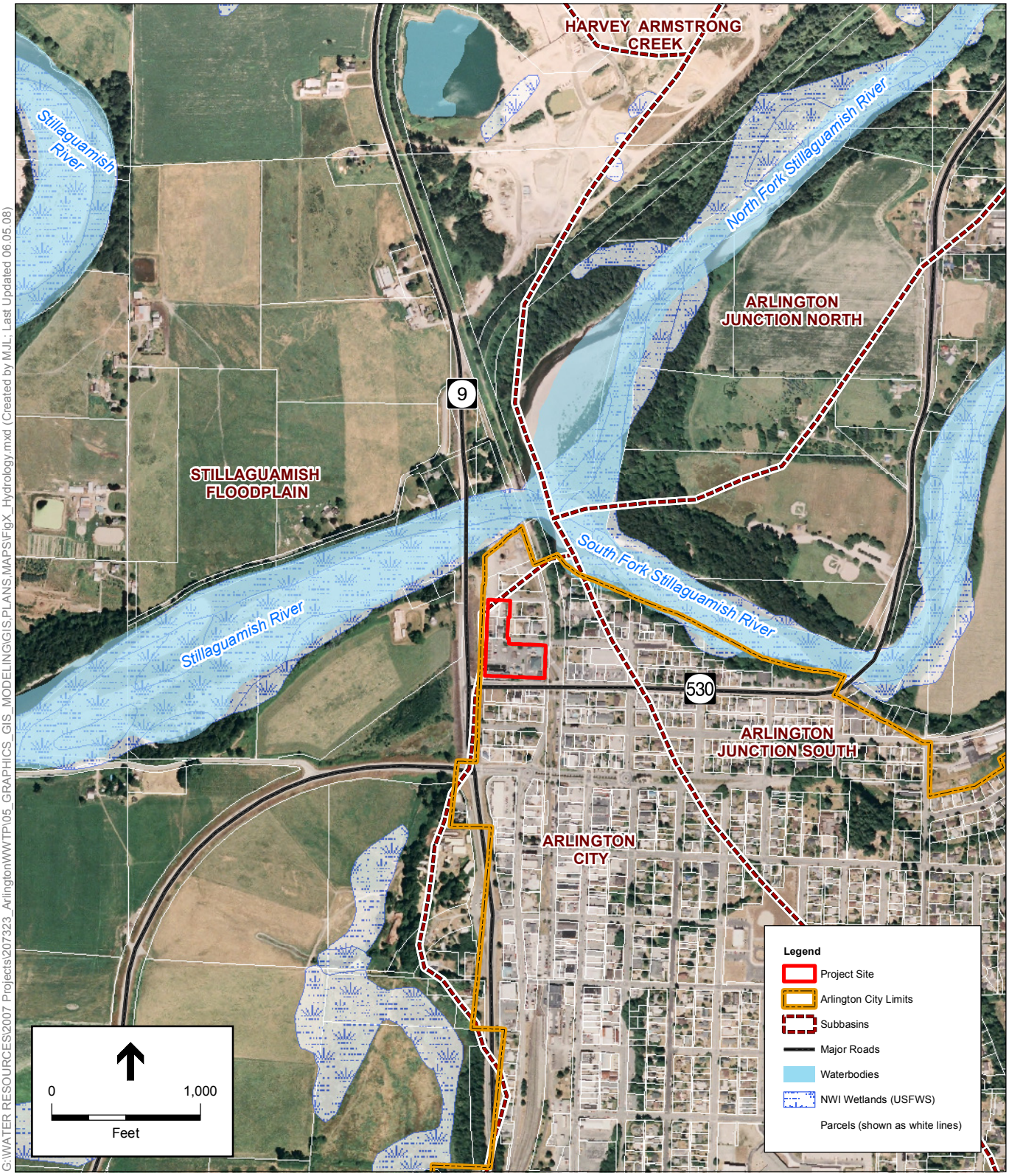
Arlington Wastewater Treatment Plant Upgrades and Expansion . 207323

SOURCE: Snohomish County, 2007; FEMA, 2005; USDA, 2006 (NAIP Imagery)

Figure 5

Floodplains and Topography
Snohomish County, Washington



G:\WATER RESOURCES\2007 Projects\207323_ArlingtonWWTP\05_GRAPHICS_GIS_MODELINGGIS.PLANS.MAPS\FigX_Hydrology.mxd (Created by MJL; Last Updated 06.05.08)

Arlington Wastewater Treatment Plant Upgrades and Expansion . 207323

SOURCE: Snohomish County, 2007; USFWS, 2007; USDA, 2006 (NAIP Imagery)

Figure 6
Hydrology
Snohomish County, Washington

6.2 EXHIBIT 2 – SERP TRIBE AND AGENCY CORRESPONDENCE

SERP INITIAL LETTERS

City
Of
Arlington
Utilities
Division
154 W. Cox Ave.
Arlington, WA 98223

Administration
360.403.3526

Water
360.403.3526

Wastewater
360.403.3526

Storm Water
360.403.3505

Solid Waste
360.403.3535

fax: 360.435.7944

May 22, 2008

US Army Corps of Engineers, Seattle District
Regulatory Branch
Jonathon Smith
PO Box 3755
Seattle, WA 98214-3755

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Mr. Smith:

The City of Arlington is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of its proposed Wastewater Treatment Plant (WWTP) Upgrade and Expansion Project. The proposed project will be constructed in two phases and is needed to provide enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025. This letter requests information that might be useful to the environmental review, and to request your comments or concerns regarding Phase 1 upgrades.

The proposed Phase 1 upgrades would occur on the City's existing 4-acre WWTP site. The site currently has multiple treatment tanks and process equipment, a water treatment plant building, a laboratory/office building, a controls building, and an administration building. The project would upgrade the wastewater treatment process to a membrane bioreactor, and would include new and expanded support facilities, a new laboratory/office building, and a new equipment building. Membrane bioreactor (MBR) technology requires a smaller footprint, typically produces a higher quality effluent compared to media filtration, and represents best available technology for cost-effective treatment of municipal wastewater. The facility would provide treatment for an average maximum month wastewater design flow of 2.67 mgd under the initial Phase 1 construction improvements, with space for additional membrane modules to increase the treatment capacity to 4.0 mgd in future years under a Phase 2 expansion. All of the proposed Phase 1 improvements will be completed within the current WWTP site boundary.

Treated effluent will continue to be discharged from the WWTP to a single outfall in the Stillaguamish River at river mile 17.7. The existing outfall will meet the Phase 1 capacity requirements without modification. It is anticipated that the future Phase 2 project will include replacement of an old mid-section of 15-inch and 16-inch diameter outfall pipe with a new 24-inch pipe so that the entire outfall pipe will be 24 inches. Dewatered sludge will continue to be trucked from the WWTP to the existing Biosolids Composting Facility (BCF) as is currently done. The BCF composes the sludge to general Class A Exceptional Quality biosolids for sale to the public and for municipal use. WWTP sludge that cannot be accommodated by the BCF is hauled away for disposal. It is anticipated that the future Phase 2 project will include expansion of the BCF as necessary for the sludge produced by the new WWTP process facilities. Additional environmental review will be conducted for these future phases prior to their implementation.

The City of Arlington anticipates funding Phase 1 of the WWTP Expansion and Upgrade Project through the Centennial Clean Water Fund and State Revolving Fund. The Washington Department of Ecology, Water Quality Program, administers these funding sources. The State Environmental Review Process (SERP) is a process required if state and federal funds are used for the planning, design, or construction of wastewater collection and / or treatment facilities. The requirements for compliance with SERP are provided in WAC 173-98-100. An Environmental Report is being prepared to comply with the requirements of SERP. SERP also requires that all applicants obtain comments from the regulatory agencies, in regards to important land resources, i.e.;

a) floodplain (Federal Emergency Management Maps "FEMA")

b) wetlands (Natural Resource Conservation Service Maps "NRCS")

c) prime forestland, prime/unique farmland (NRCS Maps)

d) Sole Source Aquifers (sewer projects lying within Coastal Zone Management counties "CZM") Environmental Protection Agency "EPA"

e) endangered species (USFWS)

f) anadromous species (National Marine Fisheries Service "NMFS")

g) archaeological (State Historical Preservation Officer "SHPO")

h) air quality (Department of Ecology "DOE"

i) water quality (DOE/Department of Health "DOH"

j) coastal zone/shoreline (DOE)

k) tribal consultation

The City of Arlington would appreciate your review of this proposal and comments from your agency regarding any issues of concern or information that should be included in the environmental documentation. Please identify any additional review requirements your agency may have. Additionally, please provide any recommendations you may have to avoid or mitigate potential impacts to resources in the project vicinity, including recommendations regarding the potential mitigation measures identified above. We would appreciate a response by June 12, 2008. If you need any further information or wish to discuss the project, please contact me at 360-403-3505.

Sincerely,

City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

Attachments: Vicinity Map

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

City
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Solid Waste
360.403.3535

fax: 360.435.7944

May 27, 2008

Washington Department of Ecology, Northwest Regional Office
Water Quality Program
Kevin Fitzpatrick
3190 - 160th Ave. SE
Bellevue, WA 98008-5452

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Mr. Fitzpatrick:

The City of Arlington is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of its proposed Wastewater Treatment Plant (WWTP) Upgrade and Expansion Project. The proposed project will be constructed in two phases and is needed to provide enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025. This letter requests information that might be useful to the environmental review, and to request your comments or concerns regarding Phase 1 upgrades.

The proposed Phase 1 upgrades would occur on the City's existing 4-acre WWTP site. The site currently has multiple treatment tanks and process equipment, a water treatment plant building, a laboratory/office building, a controls building, and an administration building. The project would upgrade the wastewater treatment process to a membrane bioreactor, and would include new and expanded support facilities, a new laboratory/office building, and a new equipment building. Membrane bioreactor (MBR) technology requires a smaller footprint, typically produces a higher quality effluent compared to media filtration, and represents best available technology for cost-effective treatment of municipal wastewater. The facility would provide treatment for an average maximum month wastewater design flow of 2.67 mgd under the initial Phase 1 construction improvements, with space for additional membrane modules to increase the treatment capacity to 4.0 mgd in future years under a Phase 2 expansion. All of the proposed Phase 1 improvements will be completed within the current WWTP site boundary.

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e) endangered species (USFWS)

f) anadromous species (National Marine Fisheries Service "NMFS")

g) archaeological (State Historical Preservation Officer "SHPO")

h) air quality (Department of Ecology "DOE"

i) water quality (DOE/Department of Health "DOH"

j) coastal zone/shoreline (DOE)

k) tribal consultation

The City of Arlington would appreciate your review of this proposal and comments from your agency regarding any issues of concern or information that should be included in the environmental documentation. Please identify any additional review requirements your agency may have. Additionally, please provide any recommendations you may have to avoid or mitigate potential impacts to resources in the project vicinity, including recommendations regarding the potential mitigation measures identified above. We would appreciate a response by June 12, 2008. If you need any further information or wish to discuss the project, please contact me at 360-403-3505.

Sincerely,

City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

Attachments: Vicinity Map

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

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Administration
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Water
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Wastewater
360.403.3526

Storm Water
360.403.3505

Solid Waste
360.403.3535

fax: 360.435.7944

May 27, 2008

Hank Gobin, Cultural Resources Manager
The Tulalip Tribes of Washington
6410 23rd Ave NE
Tulalip, WA 98271-9694

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Mr. Gobin:

The City of Arlington is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of its proposed Wastewater Treatment Plant (WWTP) Upgrade and Expansion Project. The proposed project will be constructed in two phases and is needed to provide enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025. This letter requests information that might be useful to the environmental review, and to request your comments or concerns regarding Phase 1 upgrades.

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Treated effluent will continue to be discharged from the WWTP to a single outfall in the Stillaguamish River at river mile 17.7. The existing outfall will meet the Phase 1 capacity requirements without modification. It is anticipated that the future Phase 2 project will include replacement of an old mid-section of 15-inch and 16-inch diameter outfall pipe with a new 24-inch pipe so that the entire outfall pipe will be 24 inches. Dewatered sludge will continue to be trucked from the WWTP to the existing Biosolids Composting Facility (BCF) as is currently done. The BCF composes the sludge to general Class A Exceptional Quality biosolids for sale to the public and for municipal use. WWTP sludge that cannot be accommodated by the BCF is hauled away for disposal. It is anticipated that the future Phase 2 project will include expansion of the BCF as necessary for the sludge produced by the new WWTP process facilities. Additional environmental review will be conducted for these future phases prior to their implementation.

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The City of Arlington would appreciate your review of this proposal and comments from your agency regarding any issues of concern or information that should be included in the environmental documentation. Please identify any additional review requirements your agency may have. Additionally, please provide any recommendations you may have to avoid or mitigate potential impacts to resources in the project vicinity, including recommendations regarding the potential mitigation measures identified above. We would appreciate a response by June 12, 2008. If you need any further information or wish to discuss the project, please contact me at 360-403-3505.

Sincerely,

City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

Attachments: Vicinity Map

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

City
Of
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Utilities
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Wastewater
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Solid Waste
360.403.3535

fax: 360.435.7944

May 27, 2008

Victoria Yeager
Stillaguamish Tribe of Indians
Cultural Committee
3310 Smokey Point Drive
P.O. Box 277
Arlington, WA 98223

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Ms. Yeager:

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City of Arlington

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May 27, 2008

EIS Review Coordinator
EPA Region 10
1200 Sixth Avenue (ECO-088)
Seattle, Washington 98101

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

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City of Arlington

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Utilities Manager
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May 27, 2008

EIS Review Coordinator
FEMA, Federal Regional Center
130 228th Street SW
Bothell, WA 98021-8627

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James Kelly, P.E.,
Utilities Manager
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fax: 360.435.7944

May 27, 2008

NOAA, National Marine Fisheries Service
North Puget Sound Habitat Branch
Tom Sibley
7600 Sand Point Way NE
Seattle, WA 98115

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Mr. Sibley:

The City of Arlington is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of its proposed Wastewater Treatment Plant (WWTP) Upgrade and Expansion Project. The proposed project will be constructed in two phases and is needed to provide enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025. This letter requests information that might be useful to the environmental review, and to request your comments or concerns regarding Phase 1 upgrades.

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City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

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May 27, 2008

Natural Resources Conservation Service
Lake Stevens Service Center
Gale Mayer
528 91st Ave NE STE C
Lake Stevens, WA 98258

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Ms. Mayer:

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City of Arlington

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May 27, 2008

Puget Sound Clean Air Agency
Steve Van Slyke, Supervisory Engineer
1904 Third Avenue – Suite 105
Seattle, WA 98101

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Mr. Van Slyke:

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Sincerely,

City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

Attachments: Vicinity Map

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

City
Of
Arlington
Utilities
Division

154 W. Cox Ave.
Arlington, WA 98223

Administration
360.403.3526

Water
360.403.3526

Wastewater
360.403.3526

Storm Water
360.403.3505

Solid Waste
360.403.3535

fax: 360.435.7944

May 27, 2008

Washington Department of Ecology
Loree Randall
PO Box 47600
Olympia, WA 98504-7600

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Ms. Randall:

The City of Arlington is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of its proposed Wastewater Treatment Plant (WWTP) Upgrade and Expansion Project. The proposed project will be constructed in two phases and is needed to provide enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025. This letter requests information that might be useful to the environmental review, and to request your comments or concerns regarding Phase 1 upgrades.

The proposed Phase 1 upgrades would occur on the City's existing 4-acre WWTP site. The site currently has multiple treatment tanks and process equipment, a water treatment plant building, a laboratory/office building, a controls building, and an administration building. The project would upgrade the wastewater treatment process to a membrane bioreactor, and would include new and expanded support facilities, a new laboratory/office building, and a new equipment building. Membrane bioreactor (MBR) technology requires a smaller footprint, typically produces a higher quality effluent compared to media filtration, and represents best available technology for cost-effective treatment of municipal wastewater. The facility would provide treatment for an average maximum month wastewater design flow of 2.67 mgd under the initial Phase 1 construction improvements, with space for additional membrane modules to increase the treatment capacity to 4.0 mgd in future years under a Phase 2 expansion. All of the proposed Phase 1 improvements will be completed within the current WWTP site boundary.

Treated effluent will continue to be discharged from the WWTP to a single outfall in the Stillaguamish River at river mile 17.7. The existing outfall will meet the Phase 1 capacity requirements without modification. It is anticipated that the future Phase 2 project will include replacement of an old mid-section of 15-inch and 16-inch diameter outfall pipe with a new 24-inch pipe so that the entire outfall pipe will be 24 inches. Dewatered sludge will continue to be trucked from the WWTP to the existing Biosolids Composting Facility (BCF) as is currently done. The BCF composes the sludge to general Class A Exceptional Quality biosolids for sale to the public and for municipal use. WWTP sludge that cannot be accommodated by the BCF is hauled away for disposal. It is anticipated that the future Phase 2 project will include expansion of the BCF as necessary for the sludge produced by the new WWTP process facilities. Additional environmental review will be conducted for these future phases prior to their implementation.

The City of Arlington anticipates funding Phase 1 of the WWTP Expansion and Upgrade Project through the Centennial Clean Water Fund and State Revolving Fund. The Washington Department of Ecology, Water Quality Program, administers these funding sources. The State Environmental Review Process (SERP) is a process required if state and federal funds are used for the planning, design, or construction of wastewater collection and / or treatment facilities. The requirements for compliance with SERP are provided in WAC 173-98-100. An Environmental Report is being prepared to comply with the requirements of SERP. SERP also requires that all applicants obtain comments from the regulatory agencies, in regards to important land resources, i.e.;

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c) prime forestland, prime/unique farmland (NRCS Maps)
d) Sole Source Aquifers (sewer projects lying within Coastal Zone Management counties "CZM") Environmental Protection Agency "EPA"
e) endangered species (USFWS)
f) anadromous species (National Marine Fisheries Service "NMFS")
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Sincerely,

City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

Attachments: Vicinity Map

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

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May 27, 2008

Rob Whitlam, State Archaeologist
Department of Archaeology & Historic Preservation
1063 South Capitol Way, Suite 106
Olympia WA 98501

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Mr. Whitlam:

The City of Arlington is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of its proposed Wastewater Treatment Plant (WWTP) Upgrade and Expansion Project. The proposed project will be constructed in two phases and is needed to provide enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025. This letter requests information that might be useful to the environmental review, and to request your comments or concerns regarding Phase 1 upgrades.

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The WWTP is located just east of State Route 9 at 108 West Haller in the City of Arlington (Figure 1 – Area of Potential Effect). An archaeological and cultural resources assessment of the site was performed by Northwest Archaeological Associates, Inc. (NWAA, 2006). The assessment identified historic site 45SN409 (a privy with artifacts dating from 1890 to 1930) as being located within the WWTP expansion area.

The City contracted with NWAA, per the terms of the Washington DAHP Archaeological Excavation Permit No. 07-26, to process, analyze, report on, and curate all of the artifacts recovered from site 45SN409 (NWAA, 2007a, 2007b; DAHP, 2007). The field excavation work was completed between January 22nd and 31st, 2008. NWAA then researched, processed, and recorded all recovered artifacts before forwarding them to the Burke Museum for curation. NWAA issued the Historic Site 45SN409 Mitigation Report on May 19, 2008 (NWAA, 2008).

The City of Arlington anticipates funding Phase 1 of the WWTP Expansion and Upgrade Project through the Centennial Clean Water Fund and State Revolving Fund. The Washington Department of Ecology, Water Quality Program, administers these funding sources. The State Environmental Review Process (SERP) is a process required if state and federal funds are used for the planning, design, or construction of wastewater collection and / or treatment facilities. The requirements for compliance with SERP are provided in WAC 173-98-100. An Environmental Report is being prepared to comply with the requirements of SERP. SERP also requires that all applicants obtain comments from the regulatory agencies, in regards to important land resources, i.e.;

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c) prime forestland, prime/unique farmland (NRCS Maps)
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e) endangered species (USFWS)
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g) **archaeological (State Historical Preservation Officer "SHPO")**
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j) coastal zone/shoreline (DOE)
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The City of Arlington would appreciate your review of this proposal and comments from your agency regarding any issues of concern or information that should be included in the environmental documentation. Please identify any additional review requirements your agency may have. Additionally, please provide any recommendations you may have to avoid or mitigate potential impacts to resources in the project vicinity, including recommendations regarding the potential mitigation measures identified above. We would appreciate a response by June 12, 2008. If you need any further information or wish to discuss the project, please contact me at 360-403-3505.

Sincerely,

City of Arlington,

James Kelly, P.E.,
Utilities Manager
City of Arlington

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

Attachments: Vicinity Map

Documents and Correspondence Referenced in the Letter

NWAA. 2006. Cultural Resources Assessment. December 13, 2006.

NWAA. 2007a. Inadvertent Archaeological Discovery Plan (IADP). November 9, 2007.

NWAA. 2007b. Archaeological Excavation Permit Application for Site 45SN409, the Teager/Weimer House. October 17, 2007.

DAHP. 2007. Letter from DAHP authorizing archaeological excavation at site 45SN409 and Archaeological Excavation Permit 07-26; dated December 17, 2007.

NWAA. 2008. Final report from Mitigation of Historic Site 45SN409; dated May 18, 2008.

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May 27, 2008

US Fish and Wildlife Service
Western Washington Fish and Wildlife Office
John Grettenberger, Section 7 Branch
510 Desmond Drive SE, Suite 102
Lacey, WA 98503

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Mr. Grettenberger:

The City of Arlington is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of its proposed Wastewater Treatment Plant (WWTP) Upgrade and Expansion Project. The proposed project will be constructed in two phases and is needed to provide enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025. This letter requests information that might be useful to the environmental review, and to request your comments or concerns regarding Phase 1 upgrades.

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Sincerely,

City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

Attachments: Vicinity Map

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

June 23, 2008

Washington Department of Fish and Wildlife
Ginger Holser, Habitat Biologist
16018 Mill Creek Blvd
Mill Creek, WA 98012-1296

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Ms. Holser:

The City of Arlington is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of its proposed Wastewater Treatment Plant (WWTP) Upgrade and Expansion Project. The proposed project will be constructed in two phases and is needed to provide enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025. This letter requests information that might be useful to the environmental review, and to request your comments or concerns regarding Phase 1 upgrades.

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Sincerely,

City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

Attachments: Vicinity Map

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

June 23, 2008

Washington Department of Fish and Wildlife, Region 4
David Brock, Regional Habitat Program Manager
16018 Mill Creek Blvd
Mill Creek, WA 98012-1296

RE: Environmental Review of the proposed City of Arlington Wastewater Treatment Plant Upgrades and Expansion

Dear Mr. Brock:

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Sincerely,

City of Arlington

James Kelly, P.E.,
Utilities Manager
City of Arlington

Attachments: Vicinity Map

Cc: Chris Kelsey, Kennedy/Jenks
Karmen Martin, ESA Adolfson

SERP WRITTEN CORRESPONDENCE AND CONSULTATION

From: Victoria Yeager [mailto:vyeager@stillaguamish.com]
Sent: Monday, June 23, 2008 10:18 AM
To: James Kelly
Subject: Wastewater Treatment Plant & Stormwater Wetland Project

Mr. Kelly,
As I indicated in our telephone conversation this morning the Stillaguamish Cultural Committee has had a chance to review the following projects and determined that they have no concerns at this time.

Arlington Stormwater Wetland Project

Arlington Wastewater Treatment Plant Upgrades and Expansion

I am going to forward the Wastewater Treatment Plant Upgrade paperwork to our Dept. of Natural Resources, but at this time there are no cultural concerns.

Thank you for your consideration in contacting us regarding these projects.

If you have any questions or concerns, please call our office at 360-652-7362 ext 228.

Victoria Yeager
Stillaguamish Tribe
Cultural Resources

Stillaguamish Tribe of Indians

P.O. Box 277
3439 Stoluckquamish Lane
Arlington, WA 98223-0277

March 2, 2007

Senator Patty Murray
173 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Murray:

I have reviewed the City of Arlington's proposed wastewater treatment plant improvement project, as detailed in the State Environmental Protection Agency (SEPA) checklist, and fully support their effort and desire to improve the quality of effluent discharged into the Stillaguamish River.

The mission of the Stillaguamish Tribe of Indians Natural Resources department is to manage, protect and conserve natural resources that are required to sustain healthy populations of fish, shellfish, and wildlife in the Stillaguamish River and within the Stillaguamish Watershed. The City of Arlington's proposed improvements to their wastewater treatment process will produce an effluent that of reclaimed water quality. Since the effluent is discharged into the Stillaguamish River under a national discharge permit, any improvements to the effluent quality will have a beneficial impact the Stillaguamish River and the wildlife which it supports.

The road to improving and enhancing our natural environment is long and often costly. Please give consideration to the City of Arlington's funding request for improvements to their wastewater treatment plant.

Sincerely,

SHAWN E. YANITY. Chairman
Stillaguamish Board of Directors

(360) 652-7362 FAX (360) 435-7689 (360) 435-2755 (Fisheries) SCAN 464-7012

From: Kurt Nelson [mailto:knelson@tulaliptribes-nsn.gov]
Sent: Thursday, June 12, 2008 9:37 AM
To: Bill Blake
Subject: Arlington's proposed Wastewater Treatment Plant upgrade

Bill,

Our Cultural Resources Department Manager received from the City of Arlington (James Kelly) a letter initiating a line of communication between the City and the Tribes in regard to the referenced project. It as been passed around our office for a while and finally landed on my desk. Could you let staff there know this letter and future project proposals or project letters should first go to Richard Young (Environmental Department Manager) or Danny Simpson (Natural Resource Executive Director). We need to have better communication between the City and the Tulalip Tribes. Actions taken by the City or City residents may have environmental and cultural impacts that are a concern to the Tulalip Tribes. We need to be notified of these actions. We receive on a regular basis notices of projects from the County and the City of Marysville and other jurisdictions. This needs to happen on a more regular basis with your City and others. I contacted you because you were the only City staff person I had an email address for.

P.S. We are supportive of a system upgrade to a membrane bioreactor. We have one in operation on the Reservation and have a couple studies evaluating the effluent and the potential to use the effluent to augment stream flow in a nearby creek.

Kurt Nelson

Fish and Water Resources Scientist

Tulalip Tribes

Fisheries, Natural and Cultural Resources Department

7515 Totem Beach Road

Tulalip WA 98270

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT; CANDIDATE SPECIES; AND SPECIES OF CONCERN IN SNOHOMISH COUNTY
AS PREPARED BY
THE U.S. FISH AND WILDLIFE SERVICE
WESTERN WASHINGTON FISH AND WILDLIFE OFFICE

(Revised November 1, 2007)

LISTED

Bull trout (*Salvelinus confluentus*)

Canada lynx (*Lynx canadensis*)

Gray wolf (*Canis lupus*)

Grizzly bear (*Ursus arctos* = *U. a. horribilis*)

Marbled murrelet (*Brachyramphus marmoratus*)

Northern spotted owl (*Strix occidentalis caurina*)

Major concerns that should be addressed in your Biological Assessment of project impacts to listed species include:

1. Level of use of the project area by listed species.

2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.

3. Impacts from project activities and implementation (e.g., increased noise levels, increased human activity and/or access, loss or degradation of habitat) that may result in disturbance to listed species and/or their avoidance of the project area.

DESIGNATED

Critical habitat for bull trout

Critical habitat for the marbled murrelet

Critical habitat for the northern spotted owl

PROPOSED

None

CANDIDATE

Oregon spotted frog (*Rana pretiosa*)
Yellow-billed cuckoo (*Coccyzus americanus*)

SPECIES OF CONCERN

Bald eagle (*Haliaeetus leucocephalus*)
Beller's ground beetle (*Agonum belleri*)
California wolverine (*Gulo gulo luteus*)
Cascades frog (*Rana cascadae*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Northern goshawk (*Accipiter gentilis*)
Olive-sided flycatcher (*Contopus cooperi*)
Pacific lamprey (*Lampetra tridentata*)
Pacific Townsend=s big-eared bat (*Corynorhinus townsendii townsendii*)
Peregrine falcon (*Falco peregrinus*)
River lamprey (*Lampetra ayresi*)
Tailed frog (*Ascaphus truei*)
Western toad (*Bufo boreas*)
Botrychium pedunculosum (stalked moonwort)

Endangered Species Act Status of West Coast Salmon & Steelhead

(Updated Feb. 26, 2008)

Species[1]			*Endangered Species Act Listing Status*[2]	*ESA Listing Actions Under Review*
Sockeye Salmon (*Oncorhynchus nerka*)	1	Snake River	***Endangered***	
	2	Ozette Lake	***Threatened***	
	3	Baker River	*Not Warranted*	
	4	Okanogan River	*Not Warranted*	
	5	Lake Wenatchee	*Not Warranted*	
	6	Quinalt Lake	*Not Warranted*	
	7	Lake Pleasant	*Not Warranted*	
Chinook Salmon (*O. tshawytscha*)	8	Sacramento River Winter-run	***Endangered***	
	9	Upper Columbia River Spring-run	***Endangered***	
	10	Snake River Spring/Summer-run	***Threatened***	
	11	Snake River Fall-run	***Threatened***	
	12	Puget Sound	***Threatened***	
	13	Lower Columbia River	***Threatened***	
	14	Upper Willamette River	***Threatened***	
	15	Central Valley Spring-run	***Threatened***	
	16	California Coastal	***Threatened***	
	17	Central Valley Fall and Late Fall-run	***Species of Concern***	
	18	Upper Klamath-Trinity Rivers	*Not Warranted*	
	19	Oregon Coast	*Not Warranted*	
	20	Washington Coast	*Not Warranted*	
	21	Middle Columbia River spring-run	*Not Warranted*	
	22	Upper Columbia River summer/fall-run	*Not Warranted*	
	23	Southern Oregon and Northern California Coast	*Not Warranted*	
	24	Deschutes River summer/fall-run	*Not Warranted*	
Coho Salmon (*O. kisutch*)	25	Central California Coast	***Endangered***	
	26	Southern Oregon/Northern California	***Threatened***	
	27	Lower Columbia River	***Threatened***	• Critical habitat
	28	Oregon Coast[2]	***Threatened***	
	29	Southwest Washington	*Undetermined*	
	30	Puget Sound/Strait of Georgia	***Species of Concern***	
	31	Olympic Peninsula	*Not Warranted*	
Chum Salmon (*O. keta*)	32	Hood Canal Summer-run	***Threatened***	
	33	Columbia River	***Threatened***	
	34	Puget Sound/Strait of Georgia	*Not Warranted*	
	35	Pacific Coast	*Not Warranted*	
Steelhead (*O. mykiss)*	36	Southern California	***Endangered***	
	37	Upper Columbia River	***Endangered***	
	38	Central California Coast	***Threatened***	
	39	South Central California Coast	***Threatened***	
	40	Snake River Basin	***Threatened***	
	41	Lower Columbia River	***Threatened***	
	42	California Central Valley	***Threatened***	
	43	Upper Willamette River	***Threatened***	
	44	Middle Columbia River	***Threatened***	
	45	Northern California	***Threatened***	
	46	Oregon Coast	***Species of Concern***	
	47	Southwest Washington	*Not Warranted*	
	48	Olympic Peninsula	*Not Warranted*	
	49	Puget Sound	***Threatened***	• Critical habitat • Protective Regulations
	50	Klamath Mountains Province	*Not Warranted*	
Pink Salmon *(O. gorbuscha)*	51	Even-year	*Not Warranted*	
	52	Odd-year	*Not Warranted*	

1 The ESA defines a "species" to include any distinct population segment of any species of vertebrate fish or wildlife. For Pacific salmon, NOAA Fisheries considers an evolutionarily significant unit, or "ESU," a "species" under the ESA. For Pacific steelhead, NOAA Fisheries has delineated distinct population egments (DPSs) for consideration as "species" under the ESA

2 On Feb. 11, 2008, NOAA Fisheries published a final determination listing Oregon coast coho as threatened (73FR7816). This final rule also designated critical habitat and issued final protective regulations. The listing, critical habitat and protective regulations are effective on **May 12, 2008**.

From: Moore, Jessica (ECY) [mailto:jemo461@ECY.WA.GOV]
Sent: Friday, June 13, 2008 3:00 PM
To: James Kelly
Subject: Arlington WWTP Environmental Review

Mr. Kelly,

Thank you for the opportunity to comment on the proposal to upgrade and expand Arlington's wastewater treatment plant. I have provided some general comments below:

1. Coastal Zone Management Act Consistency: If the project will require a federal permit or approval, the project may need to demonstrate consistency with Washington's Coastal Zone Management program. If necessary, there is a form to fill out indicating compliance with the Program's enforceable policies (Shoreline Management Act, Clean Water Act, Clean Air Act, SEPA, etc.). If no federal permit or approval is required, but the project will utilize federal funds, a determination of consistency is still required.
2. If the project will impact wetlands or require in-water (below the ordinary high water mark) work, a Section 401 Water Quality Certification may be necessary. The proposal does not indicate that either resource will be impacted, but if the project plans change or the footprint needs to be extended into either resource, please contact the Army Corps of Engineers and the Federal Permit Manager at Ecology's Northwest Regional Office.
3. If the proposal includes work within shoreline jurisdiction (within 200 feet of the river), please contact your environmental permitting staff to discuss shoreline permit requirements.

You may want to contact Ecology's Water Quality Program (http://www.ecy.wa.gov/programs/wq/wqhome.html or Kevin Fitzpatrick at (425) 649-7033) for additional information regarding regulatory requirements for treatment plants.

Please let me know if you have any additional questions.

Jessica Moore

Jessica Moore
Federal Permit Unit
Shorelands and Environmental Assistance Program
Washington Department of Ecology

360.407.7421
jemo461@ecy.wa.gov

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

July 7, 2008

Mr. James Kelly
City of Arlington
154 West Cox Avenue
Arlington, Washington 98223

RE: Federal Consistency – City of Arlington Wastewater Treatment Plant

Dear Mr. Kelly:

The Department of Ecology, Shorelands and Environmental Assistance Program received your letter regarding the use of federal funds as part of the Phase 1 upgrades and expansion project of the Arlington Wastewater Treatment Plant, located at 108 West Haller Avenue, Snohomish County, Washington. The project includes an upgrade of the treatment process, expansion of support facilities, and new office, laboratory, and equipment buildings.

Ecology agrees that funding this project is consistent with Washington's Coastal Zone Management Program. Please note that this Consistency Determination is for the release of funds only. Any construction activities will be subject to ALL enforceable polices of the Coastal Zone Management Program (i.e., State Water Quality requirements, etc.).

If you have any questions regarding this letter please contact Jessica Moore at (360) 407-7421.

Sincerely,

Brenden McFarland, Section Manager
Environmental Review and Transportation Section
Shorelands and Environmental Assistance Program

cc: Jessica Moore, Ecology

From: Burgess, Karen (ECY) [mailto:KBUR461@ECY.WA.GOV]
Sent: Friday, June 20, 2008 3:23 PM
To: James Kelly
Cc: Dawda, Mike (ECY); Fitzpatrick, Kevin (ECY)
Subject: Arlington WWTP - Response for the Environmental Review Process for the proposed Phase 1 WWTP Upgrades

To: James Kelly, P.E., Utilities Manager, City of Arlington

This e-mail is in response to your May 27, 2008 letter to Kevin Fitzpatrick, Water Quality Section Manager at Ecology's Northwest Regional Office which requests comments on the proposed Phase 1 upgrades to the City of Arlington's (City) Wastewater Treatment Plant (WWTP) from Ecology's Water Quality Program.

As stated in your letter, the City is in the process of performing an environmental review pursuant to the State Environmental Review Process (SERP) to assess the environmental impacts of the City's proposed WWTP Upgrade and Expansion Project. The proposal is for the construction of an enhanced wastewater treatment to meet expected regulatory requirements and planned growth through 2025.

Below is a summary of previous comments that have been satisfactorily addressed by the City during the course of previous review.

(1) In December 2006, the City submitted a draft engineering report for the proposed WWTP upgrade and expansion project to Ecology's Water Quality Section at Northwest Regional Office for review and comment.
(2) Ecology's comments on this proposal included concerns with compliance with the water quality standards for the Stillaguamish River. Based on Ecology's comments and concerns, the City revised the engineering report and submitted a final engineering report for review and approval.
(3) Based on the information provided in the final engineering report, the City has proposed to construct a treatment system at the new plant using state-of-the-art treatment technology to address concerns with the water quality standards in the river. The City will be constructing a membrane bioreactor (MBR) treatment system with biological nutrient removal (BNR) at the new plant to produce high quality effluent that may be suitable to use as "reclaimed water". The final engineering report was approved by Ecology on July 17, 2007.
(4) Ecology is in the process of drafting and issuing an NPDES permit to the City for the existing WWTP. The fact sheet for this permit will address the future requirements that the City will need to address after the upgraded and expanded WWTP becomes operational.
(5) The NPDES permit for the new upgraded and expanded WWTP will reflect more stringent BOD and TSS limits. It will also include effluent limitations for phosphorus. For the effluent discharge from the new WWTP, the City will be required to conduct sampling and analysis followed by water quality modeling, for temperature, and copper and zinc to determine compliance with the water quality standards in the river for these parameters. Following this study, the City will be required to address any non-compliance issues and take corrective actions to comply with the water quality standards.

Ecology's Water Quality Section at Northwest Regional Office is satisfied with the progress the City has made to date and has no objection to the City proceeding with the design and construction of the proposed upgraded and expanded WWTP. Mitigation measures have been addressed during previous review of the Engineer Report. Ecology's Water Quality Program has no further comments.

Sincerely,

Karen Burgess, P.E.
Municipal Unit Supervisor
Department of Ecology

Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

phone 425-649-7207
email kbur461@ecy.wa.gov

From: Ginger Holser [mailto:holsegh@DFW.WA.GOV]
Sent: Tuesday, June 24, 2008 6:26 PM
To: James Kelly
Subject: Re: City of Arlington Wastewater Treatment Plant UpgradeEnvironmental Review

James,

Thank you for providing the opportunity for the Washington Department of Fish and Wildlife (WDFW) to comment on this project.

It does not appear that the work described in Phase 1 will require a Hydarulic Project Approval (HPA) from WDFW.

However, replacing the outfall in Phase 2 will require a HPA.

If your plans change, please contact WDFW to determine if a HPA will be required.

Sincerely,

Ginger Holser
Area Habitat Biologist
16018 Mill Creek Blvd
Mill Creek WA 98012
Office: 425-379-2305
Fax: 425-379-2323

holsegh@dfw.wa.gov

>>> "James Kelly" <jkelly@ci.arlington.wa.us> 06/23/08 3:35 PM >>>
Ms. Holser:

Per our phone conversation, attached is a copy of the letter the City mailed to you and to Mr. Brock earlier today. Also included as a separate file is the attachment referenced in the letter.

Please feel free to contact me if you have any questions or concerns about this project.

Thank you-

James X. Kelly, PE | Utilities Manager

City of Arlington | Utilities Division

154 West Cox Ave.

Arlington, WA 98223

Phn: 360-403-3505

Fax: 360-435-7944

JKelly@ci.arlington.wa.us

From: Claude Williams [mailto:ClaudeW@pscleanair.org]
Sent: Tue 6/3/2008 4:33 PM
To: James Kelly
Cc: Peggy Franzen
Subject: RE: Arlington WWTP Expansion

Mr.. Kelly,

Since you neither have anaerobic digestion, nor chlorine sterilization in your project it is exempt from the requirement to submit a Notice of Construction Application as per Regulation I, Section 6.03(c)(93).

v/r

Claude Williams, P.E.
Air Pollution Engineer
claudew@pscleanair.org
Puget Sound Clean Air Agency
1904 Third Avenue – Suite 105
Seattle WA, 98101-3317
Ph: 206.689.4066, Fax: 206.343-7522

From: James Kelly [mailto:jkelly@ci.arlington.wa.us]
Sent: Tuesday, June 03, 2008 4:10 PM
To: Claude Williams
Subject: Arlington WWTP Expansion

Claude:

Re: Arlington WWTP Expansion
WWTP Registration #11058

Pursuant to our phone conversation, the Arlington WWTP expansion and upgrade project will:

1. Have no anaerobic digestion (will not produce methane gas)
2. Will use ultraviolet light (UV) for disinfection of the effluent, not chlorine.

Please call or email if you have any questions. Thank you.

James X. Kelly, PE | Utilities Manager
City of Arlington | Utilities Division
154 West Cox Ave.
Arlington, WA 98223
Phn: 360-403-3505
Fax: 360-435-7944
JKelly@ci.arlington.wa.us

7.0 REFERENCES

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