



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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SEP 09 2015

Greg Volkhardt  
Environmental Programs Manager  
Tacoma Public Utilities, Water Division  
3628 South 35<sup>th</sup> Street  
Tacoma, WA 98409

**RE: APPROVED Temporary Drought Authorization for Water Right Application S1-28803**

Dear Mr. Volkhardt:

In accordance with the provisions of RCW 43.83B.405, on May 21, 2015, it was determined and ordered by Director Maia Bellon of the Department of Ecology and Governor Jay Inslee that the entire State of Washington is under drought conditions. In accordance with the provisions of WAC 173-166-080, the Department of Ecology (Ecology) is, under the terms of this Order, issuing a **TEMPORARY DROUGHT AUTHORIZATION** for Water Right Application S1-28803. The intent of this Authorization is to augment flows in the Green River during the current drought period.

**Introduction**

Tacoma Public Utilities, Water Division (Tacoma Water) applied on August 31, 2015, to pump water held in dead storage within Eagle Lake to augment flows in the Green River to help meet minimum instream flow requirements during the late summer and fall of 2015 (Figure 1). This project is temporary in nature. Diversion of water will begin no earlier than September 15, 2015. See Attachment 1 for the location.

To accomplish this project, a barge will be deployed in the pelagic zone of the lake approximately 350 feet from the boat launch area at the north end of the lake. Water will be transported by pipes and/or hoses from the barge to the Eagle Creek culvert under the 5516 Road (Figure 2). One or more electrical pumps will be used to divert the water during the drawdown. The water will then flow through the natural stream channel to Howard Hanson Reservoir, where it will be available to augment flows in the Green River to help meet instream flow requirements described in Tacoma Water's Green River Habitat Conservation Plan (HCP) and its settlement agreement with the Muckleshoot Indian Tribe.

This project involves cutting or mowing shoreline vegetation and removing large woody debris from the lake's shoreline and littoral zones to improve access for equipment and a piping route into the Eagle Creek culvert. It also requires the operation of a diesel generator to provide electrical



power for the pumps and lights. The following plan describes protection measures to prevent or minimize impacts to fish and aquatic habitats and outlines mitigation for unavoidable riparian and littoral zone impacts in order to achieve no-net-loss of habitat.

### **Project Description**

Tacoma Water serves communities in Pierce and King Counties, providing municipal and industrial water to homes and businesses. About 95% of the water supply comes from the Green River watershed in eastern King County through two existing water rights that provide up to 213 cubic feet per second (cfs). The use of these water rights is constrained by minimum instream flow requirements. In 2015, natural stream flows diminished rapidly in the spring to record low levels requiring extraordinary augmentation of water stored behind Howard Hanson Dam to meet the minimum instream flow requirements. Depending on timing and magnitude of fall rains, insufficient water may be available in the fall to meet instream flow requirements that protect fisheries resources.

This project will pump water held in Eagle Lake to help meet the instream flow needs. Eagle Lake holds approximately 4,000 acre-feet (AF) of water. Tacoma Water will operate one or more screened submersible pumps to achieve a discharge of approximately 30 cubic feet per second (cfs) into Eagle Creek. From Eagle Creek, the water will flow into the North Fork (NF) Green River, Howard Hanson Reservoir, and then into the mainstem Green River. Once implemented, the drawdown will likely continue 24 hours per day, 7 days per week until either: 1) the drought emergency declaration is terminated, or 2) approximately 2,000 AF +/- is taken (the total amount will be determined through discussions with the Ecology and the Green River Drought Response Committee). Pumping will be suspended when turbidity levels in the NF Green River downstream of the Tacoma Water North Fork Wells exceed 200 Nephelometric Turbidity Units (NTU).

The lake pumping project includes the following elements:

1. Cut alders up to ~3 inches DBH (Diameter at Breast Height) and mow approximately 2,700 ft<sup>2</sup> of shoreline vegetation to provide access for a barge, crane/boom truck, work skiff, pipes, hoses, electrical cables, and other project elements (Figure 1, Photos 1, 2, and 3).
2. Remove and stockpile large woody debris from the shoreline and littoral areas affected by the project (Figure 1, Photo 4).
3. Deploy a barge outfitted with one or more submerged electric pumps and associated hoses and/or pipes and anchor it in the pelagic zone (Figure 2). A crane or boom truck will be used to lift the barge from the access road/boat launch (Photo 5) into the lake. The barge will be positioned using its own engines or towed/pushed into position with a work skiff. Pipes and/or hoses will convey water from the submerged pumps at the barge to the Eagle Creek culvert at the 5516 Road. Pipes and/or hoses will be suspended above the lake bottom until just prior to reaching the shoreline. They will then travel up the shoreline to the culvert where the water will be discharged.
4. A generator will be sited adjacent to the 5516 Road to supply power for the pumps, lights, and any associated equipment (Figure 2). One or more shielded cables will be

routed from the generator out to the barge to provide electrical power.

5. At the end of pumping, the barge, piping, and associated materials will be removed from the lake and stream channel below the ordinary high water mark.

### **Site Description**

#### **Project Site**

Eagle Lake is a natural impoundment located in the NF Green River sub-basin (S13, T21N, R08E). It has a surface area of about 58 acres and is estimated to hold 4,000 acre feet of water. The lake discharges into Eagle Creek, which is a tributary of the NF Green River. The NF Green is a tributary of the Green River. Its natural confluence is located at about RM 65, now submerged within the Howard Hanson Dam Reservoir pool.

The project site is located at the north end of the lake adjacent to the 5516 Road (Figure 1).

Eagle Lake contains resident cutthroat trout. Anadromous fish access to the project site is blocked by an impassable cascade within Eagle Creek, and further downstream at the Green River Headworks Dam. A trap and haul facility is located at the Headworks Dam, but adult fish are not currently released above the Headworks or Howard Hanson Dam given the lack of effective downstream juvenile fish passage at Howard Hanson Dam. Only resident fish are found at the project site.

Shoreline vegetation at the project site consists primarily of red alder (*Alnus rubra*) up to 20 feet in height and 3 inches in diameter at DBH as well as native shrubs and forbs. The surrounding upland areas are comprised of mixed stands of merchantable Douglas fir and western hemlock with occasional red cedar.

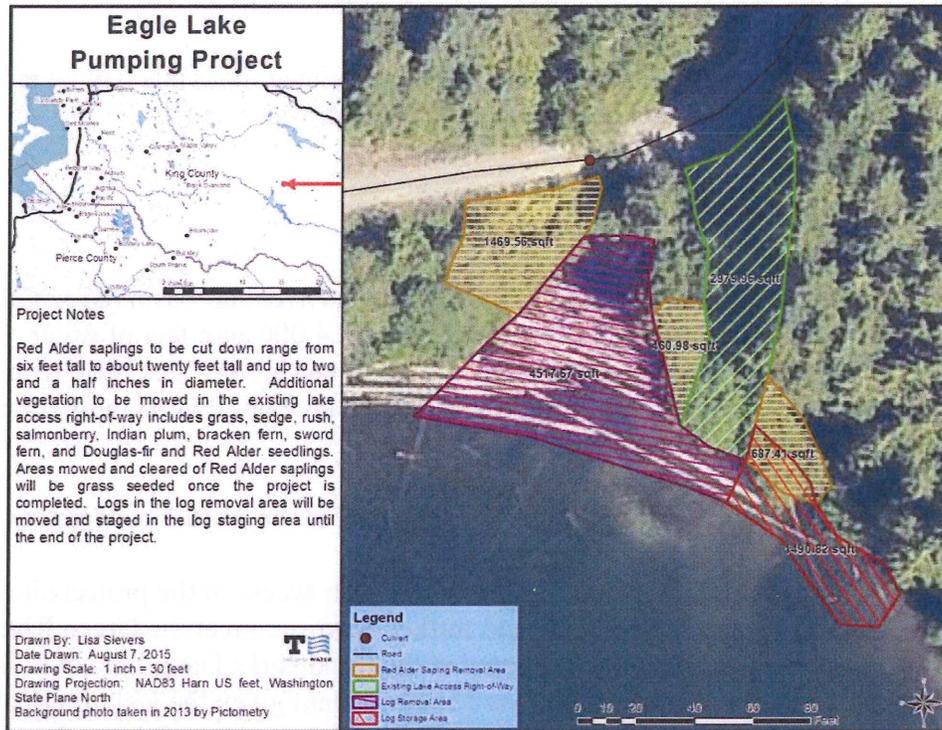


Figure 1. Location of Eagle Lake within the NF Green River sub-basin of the Green River Municipal Watershed, near Howard Hanson Dam, Washington and pertinent project features.

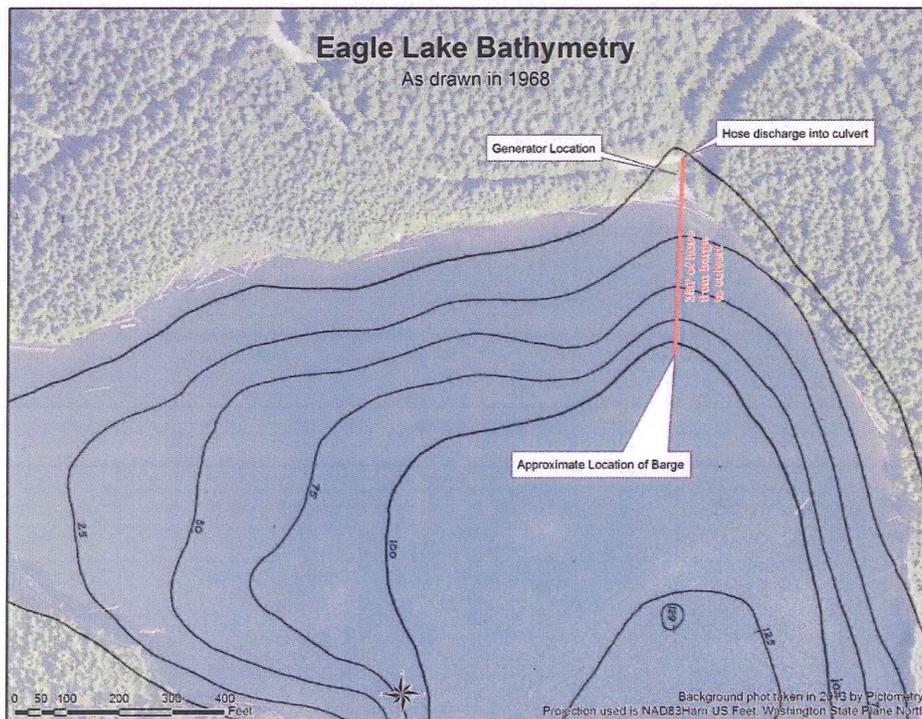


Figure 2. Location of the pumping barge, generator, and pipe/hose routes. Bathymetry is from a hand-drawn map done in the 1980s that was fitted to the photo and provides at best a general indication of the water depth profile of the lake.

### **Other Agencies with Jurisdiction**

The Washington Department of Fish and Wildlife (WDFW) regulates construction or performance of work that will use, divert, obstruct, or change the natural flow or bed of waters of the state under RCW 77.55. Shorelines permitting for drought emergency projects are regulated by King County under its Shorelines Master Program. RCW 90.58.370 requires state and local governments to expedite permits for emergency water withdrawal projects conducted under a drought declaration. SEPA review for the project is exempted under RCW 43.83B.410(2).

### **Project Impacts and Mitigation**

#### **Project Site**

The work at the project site includes five elements. Impacts for each are discussed individually.

#### ***Clearing***

*Approach:* Vegetation from three areas totaling 2,700 ft<sup>2</sup> will be cut and/or mowed to develop a work area (Figure 1, Photos 1, 2, and 3). The area consists primarily of young stands of red alder with a DBH of 3 inches or less. Understory plants include grass, sedge, rush, salmonberry, Indian plum, bracken fern, sword fern, and Douglas fir and red alder seedlings. A portion of this area will be impacted by operation of an excavator with a grapple (log loader) and crane. Hydraulic equipment operated within 200 feet of Eagle Lake will use vegetable-based hydraulic fluid. Equipment entering the watershed will be steam-cleaned before entry to remove invasive species and any grease or oil substances.

*Impacts:* Cutting and mowing shoreline vegetation will result in a minor reduction of shade and vegetative cover, but will leave the root system mostly intact. It is expected that many if not most of the alders and understory plants will regrow following mowing. Areas on which track vehicles operate may be further damaged. This is expected to be less than the full 2,700 ft<sup>2</sup> that are cut/mowed.

*Mitigation:* Mowed vegetation will be chipped and the mulch produced will be spread over the area at the end of the project. Exposed soils will be covered with straw and reseeded with grass seed. Alders and understory shrubs and forbs are expected to regrow and/or naturally recruit at this location.



*Photo 1. Young red alders and shrubs totaling 687 ft<sup>2</sup> located east of the Eagle Lake Access Road/Boat Launch as shown in Figure 1.*



*Photo 2. Young red alder and shrubs totaling 461 ft<sup>2</sup> located west of the Eagle Lake Access Road/Boat Launch as shown in Figure 1.*



*Photo 3. Young red alders totaling 1,470 ft<sup>2</sup> located west of the Eagle Lake outlet channel as shown in Fig 1.*

***Remove and Stockpile Large Woody Debris***

*Approach:* An excavator with a grapple (log loader) will be used to pick woody debris from approximately 4,600 ft<sup>2</sup> of shoreline and littoral zone habitats to clear a pathway for the barge, work skiff, and associated pipes and hoses to traverse between the shoreline and pelagic zone work areas. Large woody debris (Photo 4) will be stockpiled on and adjacent to a portion of the mowed area as shown in Figure 1. Equipment will be cleaned and inspected to ensure no noxious weeds are brought into the municipal watershed.

*Impacts:* Removal and stockpiling of the large woody debris will result in temporary turbidity impacts to the lake and loss of habitat.

*Mitigation:* A grapple will be used to pick and move the logs, which will minimize turbidity compared to using an excavator with a thumb. Logs will be decked adjacent to the lake and will be replaced along the shoreline and within the littoral zone at the end of the project.

*Monitoring:* None proposed.



*Photo 4. Large woody debris near the Eagle Lake outlet channel that will be moved and stockpiled during the project.*

#### ***Barge and Pump Deployment/Operation***

***Approach:*** A barge outfitted with one or more submerged pumps will be trailered to the access road (Figure 1 and Photo 5) and deployed onto the lake using a crane. The barge will be positioned within the pelagic zone using its own motor or will be pushed/pulled into position using a work skiff and anchored into place (Figure 2). Submerged pump(s) will be screened to protect fish life and will pump water from a mid-depth position within the lake. Discharge pipes and/or hoses will carry the pumped water from the barge to the Eagle Creek outlet channel where water will discharge. Prior to entering the watershed, the barge, skiff, pipes and/or hoses and associated equipment will be cleaned and inspected for deleterious aquatic organisms (Appendix A).

***Impacts:*** Positioning of the barge over the pelagic zone will have little to no shade impact on a bottom well over 30 feet below the water surface. Layout of pipe and/or hoses will disturb bottom sediments as the lake level declines and the pipes/hoses rest on the exposed lake bottom. As the water declines, lake sediments may shift or slide increasing turbidity within the lake. Removal of water from the lake will disconnect aquatic habitats from the riparian zone and shoreline. It will also reduce the volume of the lake by about 50%, increasing the density of fish and other aquatic life. Eagle Lake is closed to the public. Thus, any temporary impacts to fish populations will not impact fisheries.

***Mitigation:*** Discharge pipes and/or hoses and electrical cables will be suspended off the lake bottom except over those portions of the lake bed that are exposed as the water surface elevation declines. Aquatic plants in the littoral zone may be impacted by exposure. Since this work is occurring in the fall when aquatic vascular plants and emergent plants typically die back, this impact is likely to be less-than-significant unless it takes more than 6 months for the lake elevation to be re-established. In 1987, when pumping Eagle Lake was last done, it took just 4 months for the former lake surface elevation to be re-established. Turbidity impacts are expected to be minimized by the suspension of pumping when turbidity reaches 200 NTU in the North Fork Green River.



*Photo 5. Eagle Lake access road/boat launch.*

### **Project Site Power**

*Approach:* A generator capable of supplying power to the pumps, lights, and other electrical power needs will be positioned adjacent to the 5516 Road (Figure 2). A containment device capable of holding the entire volume of the generator's fuel tank will be installed. Electrical cables will be deployed from this location to power equipment.

*Impacts:* None anticipated.

### **Demobilization**

*Approach:* The barge, boat, pumps, pipes and/or hoses, electrical cables, and associated equipment and materials will be removed from Eagle Lake following the cessation of pumping. If snow or other conditions prevent demobilization, equipment may remain at the project site until as late as April 2016. Equipment will be skidded across the exposed lake bottom to within reach of the crane where it will be lifted out of the water and onto trailers located on the 5516 Road.

*Impacts:* Skidding equipment on the lake bottom to the pick point will disturb exposed bottom sediments and increase turbidity. Cessation of pumping may dewater Eagle Creek and result in fish stranding.

*Mitigation:* Impacts are expected to be temporary in nature. Lifting the barge and equipment over the near-shore area protects exposed aquatic plant life from disturbance. At the cessation of pumping, Tacoma Water will conduct a fish salvage operation downstream from Eagle Lake until sufficient groundwater derived flows are present to support fish life. Collected fish will be released in lower Eagle Creek where sufficient flows exist.

## **DEPARTMENT OF ECOLOGY DECISION - INCLUDING TERMS & CONDITIONS**

Based on the information above, the Department of Ecology has determined this project will utilize available water, for a beneficial purpose, which will not impair senior rights or the public interest.

Under the authorities of RCW 43.83B.405, RCW 90.03.397, and WAC 173-166-080, your request for a **Temporary Drought Authorization** is hereby **APPROVED** under the terms and conditions listed below.

- **This Temporary Drought Authorization shall be in effect beginning on September 15, 2015 and shall expire on December 15, 2015.**
- This Authorization is for a diversion from Eagle Lake located within the SE¼ SW¼ of Section 13, Township 21 North, Range 8 East, W. M., in King County. (Hydro parcel 132108HYDR)
- The total instantaneous quantity of water to be diverted under this Authorization is limited to 30 cfs.
- A total volume of 2000 acre-feet of water is allowed for diversion under this Authorization.
- Suitable flow measuring devices or methods must be utilized to ensure the limits of this Authorization are not exceeded.
- The purpose of use of this Authorization will be to help Tacoma Water meet their minimum instream flow requirement of 250 cfs at the Green River Auburn Gage (USGS #12113000). This minimum instream flow is required under Tacoma's Habitat Conservation Plan and the Muckleshoot Settlement Agreement for the protection of fish and other aquatic resources.
- Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times to the project location, and to inspect at reasonable times, records of water use, the diversion(s), measuring methods, and associated systems for compliance with water law.
- The diversion intake(s) shall be screened in accordance with Washington Department of Fish and Wildlife screening criteria. See: <http://wdfw.wa.gov/about/contact/>
- Violation of any of the terms and conditions of this Temporary Drought Authorization will result in this Authorization being immediately canceled, issuance of administrative orders to cease and desist, and may also subject the violator to civil penalties.
- A report will be prepared and submitted to the Department of Ecology (Northwest Regional Office) and the Washington Department of Fish and Wildlife by August 30 each year beginning in 2016 and until the lake is refilled, describing the lake elevation achieved relative to the culvert invert elevation at the 5516 Road crossing over Eagle Creek and providing photographs of the areas where vegetation was cut/mowed.

#### **Your Right To Appeal**

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

Greg Volkhardt  
Environmental Programs Manager  
Tacoma Public Utilities, Water Division  
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To appeal you must do the following within 30 days of the date of receipt of the Order. File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

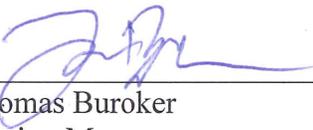
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.
- You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Street Addresses	Mailing Addresses
<b>Department of Ecology</b> Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	<b>Department of Ecology</b> Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
<b>Pollution Control Hearings Board</b> 1111 Israel RD SW Ste 301 Tumwater, WA 98501	<b>Pollution Control Hearings Board</b> PO Box 40903 Olympia, WA 98504-0903

For additional information visit the Environmental Hearings Office Website:  
<http://www.eho.wa.gov>

To find laws and agency rules visit the Washington State Legislature Website:  
<http://www1.leg.wa.gov/CodeReviser>

Signed at Bellevue, Washington, this 9<sup>th</sup> day of September, 2015.



Thomas Buroker  
Section Manager  
Water Resources Program

cc: Ken Brettmann, P.E., Army Corps of Engineers  
Holly Coccolli, Muckleshoot Indian Tribe  
Larry Fisher, WA Department of Fish & Wildlife

tb:bs:mc

Enclosure: Your right to be heard

Attachment: Attachment 1, area & vicinity map

By Certified Mail: 9171 9690 0935 0107 0035 36

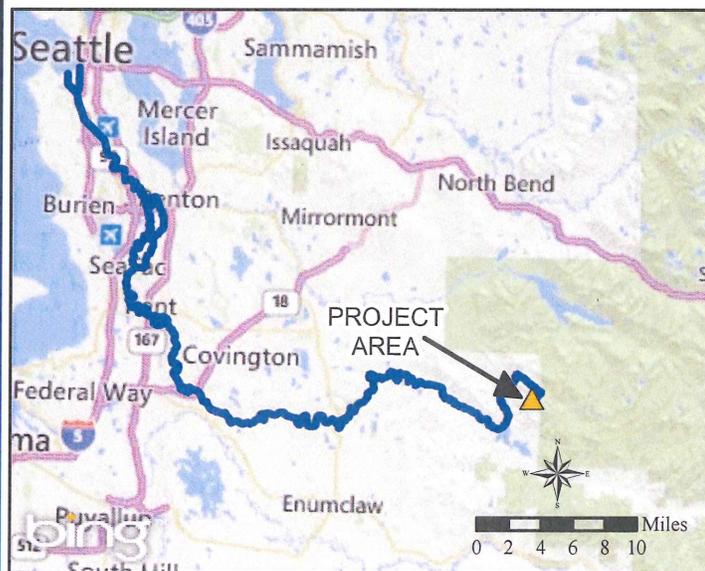
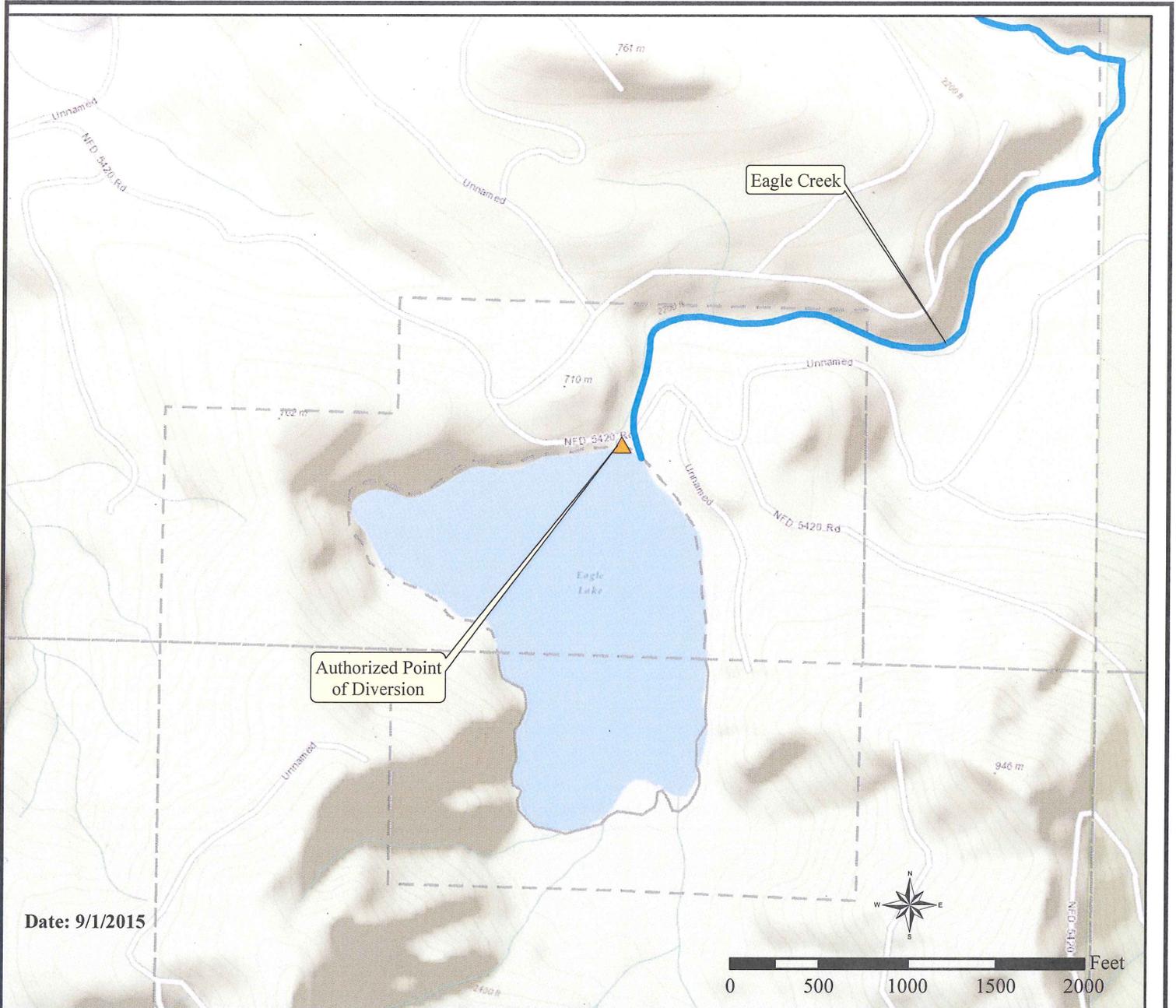
## APPENDIX A – REQUIREMENTS FOR DECONTAMINATION OF EQUIPMENT AND MATERIALS

Contractor will disinfect and steam clean machinery, equipment, and construction materials that will be in contact with the reservoir shoreline/bottom. This includes machinery, equipment, and materials that are new or have been previously used outside the Green River Watershed. Contractor will provide documentation of other areas where machinery, equipment, and materials were used or stored during the previous twelve months if asked. Contractor will select and schedule an acceptable facility for the decontamination and inspection of machinery, equipment, and materials with the City's Senior Environmental Technician or substitute. The cleaning/disinfection must be done in the presence of the City's Senior Environmental Technician. Reschedule decontamination and inspection if machinery, equipment, or materials have been temporarily taken out of the Watershed and returned.

The decontamination and cleaning procedure for equipment has four steps:

1. Visual inspection and physical removal of obvious plant fragments and mussel shell.
2. Steam clean to remove all oil, grease, and debris.
3. Wash/disinfect with chlorine solution.
4. Final visual inspection by Senior Environmental Technician.

# ATTACHMENT 1



## Legend

-  King County Parcels
-  The Augmentation Reach
-  Authorized Point of Diversion



Tacoma Public Utilities  
(Tacoma Water)  
Eagle Lake Drought Mitigation Project  
Temporary Drought Authorization S1-28803  
Section 13 T 21N R 08E W.M.  
WRIA 9 - King County