WORK PLAN AND DIVE SAFETY PLAN

To: Heather Page
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Seattle, WA 98101

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19950 7th Ave NE, Suite 200
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May 20, 2019

From: Grette Associates LLC
2102 North 30th Street, Ste A
Tacoma, WA 98403

File No.: 348.007

Re: Port Gamble Cleanup Project – Voluntary Eelgrass Transplant: Work Plan and Dive Safety Plan

At the request of Anchor QEA, LLC and Pope Resources/Olympic Property Group, Grette Associates (Grette) has prepared this Work Plan and Dive Safety Plan to summarize the proposed voluntary eelgrass transplanting activities that will occur at the Port Gamble Bay Cleanup Project (NWS-2013-1270) site. Grette divers will conduct an eelgrass transplant on the SMA-2 eelgrass mitigation area. Activities will include a qualitative assessment of the mitigation area prior to transplant to identify approximate coverage of eelgrass, harvesting eelgrass from the donor bed immediately south of the site, and transplanting eelgrass into the eelgrass mitigation area. SCUBA diving will occur at the mitigation area and eelgrass donor bed in water depths not to exceed 40 FSW.

Eelgrass Harvest

During eelgrass harvesting, divers will work in pairs to collect and count eelgrass turions, which will be stored in mesh dive bags carried by the divers. Turions will be harvested by gently agitating the substrate beneath the turions by hand to expose the rhizomes. Rhizomes and turions together will be pulled from the substrate, taking care not to break the turions from the rhizomes.

As much rhizome material as possible will be collected along with the turions. Once the bags are full, the divers will ascend to the boat to deliver the mesh bags containing the eelgrass to the Safety Officer/Diver Tender. Diver ascents/descents will be minimized to the greatest extent possible. The eelgrass turions will be placed into a large cooler containing fresh seawater. After the divers have finished harvesting for the day, the eelgrass turions will be separated and trimmed to approximately 8-10 inches in length. They will then be placed into a separate cooler

containing fresh seawater and kept out of direct sunlight. If necessary, bagged blue ice will be used to maintain cool water temperatures.

Staple/Rebar Processing

After returning to shore, Grette staff will begin processing the eelgrass turions into planting units (PUs). Staff will tie four eelgrass turions onto landscape staples with paper-coated twist ties and jute twine. The heavy gauge landscape staples will be a minimum of 9 inches long with a minimum 1-inch crown. The turions will be crossed on the staples, with two turions facing one direction and two facing the other, such that paired blades extend from either side of the staple.

Three of the plots to be planted in the south portion of the site will utilize PUs assembled using jute twine to tie the turions to the landscape staple. This will be done to evaluate the effectiveness of the twine in holding the turions to the staple while not damaging the leaf blades.

In addition to the landscape staple PUs, Grette Associates will tie turions onto 2-foot lengths of rebar for planting. Approximately 10 turions will be tied to each piece of rebar using jute twine. It is anticipated that up to 22 rebar PUs will be used, depending on the quantity of eelgrass that can be harvested during the project. Once the turions have been tied to the rebar, they will be kept in the coolers with the prepared staples prior to transplanting.

Eelgrass Transplanting

It is anticipated that approximately 3,000 turions will be harvested for transplanting into the eelgrass mitigation area. As survival has appeared to be highest in the southern portion of the mitigation bench, up to seven (7) eelgrass plots will be planted in that area. An additional three (3) plots will be established in the northern portion of the bench. The plots in the south portion are intended to augment the established eelgrass in this area from which volunteer eelgrass can spread to other areas of the mitigation bench. The additional plots in the north portion are intended to establish persistent eelgrass in that area, where most of the low eelgrass survival has occurred to date. In addition to the plots in the northern portion of the bench, the rebar will be placed in this area as well.

Turion Density

The transplant plots will be 9 ft by 9 ft square, for a total of 81 square feet (7.53 m^2). The seven plots in the south will be planted at two densities: 1.5 feet on-center (26 turions/m^2) and 1 foot on-center (53 turions/m^2). The four plots planted at 1 foot on-center will contain 400 PUs (1,600 turions), and the three plots planted at 1.5 feet on-center will contain 147 PUs (588 turions). This will establish eelgrass within the seven southern plots at approximately 42 turions/m^2.

The three plots planted in the northern portion of the bench will all be planted at 1.5 feet on-center for a density of 26 turions/m^2 (147 PUs; 588 turions). Additionally, the rebar PUs will be dropped in an area approximately 15 feet by 30 feet (see attached figure for plot layout and coordinates).

Transplant Methods

Prior to transplanting, each plot location will be identified by dropping a weighted buoy from the boat at the pre-determined coordinates. Paired divers will then establish the four corners of each plot using rebar to create the 9 ft by 9 ft square plot. Once the plots have been established, plastic totes filled with a pre-determined number of PUs will be submerged near the plots.

The paired divers will then use transect tapes and a knotted line to indicate the locations where the PUs are to be planted within the plots. Nylon lines tied at either 1-ft or 1.5-ft intervals will be used depending on the density of the particular plot being planted.

This process will be repeated for the transplant plots established in the northern portion of the site. In addition, the rebar PUs will be carefully dropped over the side of the boat at the pre-determined location(s) in the northern area. Once the rebar has been dropped from the boat, divers will descend to inspect the rebar and evaluate the rhizome contact with the substrate. If necessary, the rebar will be repositioned to maximize rhizome contact with the substrate.

Transplant activities are expected to occur June 3-7, 2019. After the field effort, Grette Associates will prepare a technical report summarizing the eelgrass transplant activities at the mitigation site.

Dive Safety Plan

Grette Associates divers will perform an eelgrass transplant on the mitigation area for the Port Gamble cleanup. Activities will include surveying eelgrass coverage, harvesting eelgrass, and transplanting eelgrass harvested into the eelgrass mitigation area. Diving will occur inside the mouth of Port Gamble Bay in water depths of approximately -5 ft to -15 ft MLLW and not to exceed 40 FSW. The diving activities will be scheduled to coincide with the slack tide to the greatest extent possible to avoid potentially strong currents during the tidal exchange. Diver ascents/descents will be minimized to the greatest extent possible. This project will be completed over the course of 5 days and includes a diving supervisor/project manager, two diver biologists, and a safety supervisor/dive tender.

Prior to the dive, a pre-dive safety meeting will be held prior to launching the boat, during which any final questions about the dive survey, objectives, or safety will be discussed. While divers are conducting the work as described above, a suited Safety Diver will be located in the anchored dive boat and will maintain sight of diver bubbles at all times. The dive tender will monitor vessel traffic within 300 feet. While on-site, a copy of this dive plan, a first aid kit, VHF radio and/or cellular phone, and supplemental oxygen will be available. Accurate records will be kept of diver time in and out of the water, maximum depth, and starting and ending tank pressures.

DIVER INFORMATION

Scott Maharry – Diving Supervisor/Project Manager
Emergency contact: Nora Maharry (spouse), 6224 27th St. Ct. NW, Gig Harbor, WA 98335, 425-306-2196
SCUBA certifications: NAUI Open Water, SDI Night-Limited Visibility Diver, Computer Diver, Underwater Navigation Diver, Deep Diver, Advanced Open Water, certified to 130 fsw
Other active certifications: Diving First Aid for the Professional Diver, CPR (exp. 9/1/2020)
Washington State Boater Certification: Boater EC 00026559; 12/01/2008

Jay Dirkse –Diver Biologist
Emergency contact: Anna Dirkse (spouse), 8447 Main St, Peshastin, WA 98847, 509-548-0308
SCUBA certifications: PADI Open Water, certified to 60 ft
Washington State Boater Certification: Boater EC 00056457; 07/06/2012

Thomas Peterman –Diver Biologist
Emergency Contact: Tana Peterman (spouse), 12450 80th Ave S. Seattle, WA 98178, 206-849-7370
SCUBA Certifications: PADI, Deep Diver, Advanced Open Water, certified to 130 fsw
Other active certifications: Diving First Aid for the Professional Diver, CPR (exp. 9/1/2020)
Washington State Boater Certification: Boater EC 00226173; 04/27/2015

Chad Wallin – Safety Supervisor/Dive Tender
Emergency contact: Lauren Wallin (spouse) 12930 Fagerud Rd. SE Olalla, WA 98359 (253) 330-3120
SCUBA certifications: SDI Open Water, certified to 60 ft
Other active certifications: Diving First Aid for the Professional Diver, CPR (exp. 9/1/2020)
Washington State Boater Certification: Boater EC 00102740 issued 04/16/2012

GENERAL CONTACT INFORMATION

Grette Associates Health and Safety Managers

Matthew Boyle	253-573-9300
Matthew Boyle Cell	206-276-0808
Glenn Grette	509-663-6300
Glenn Grette Cell	509-669-6374

Local Emergency Contacts

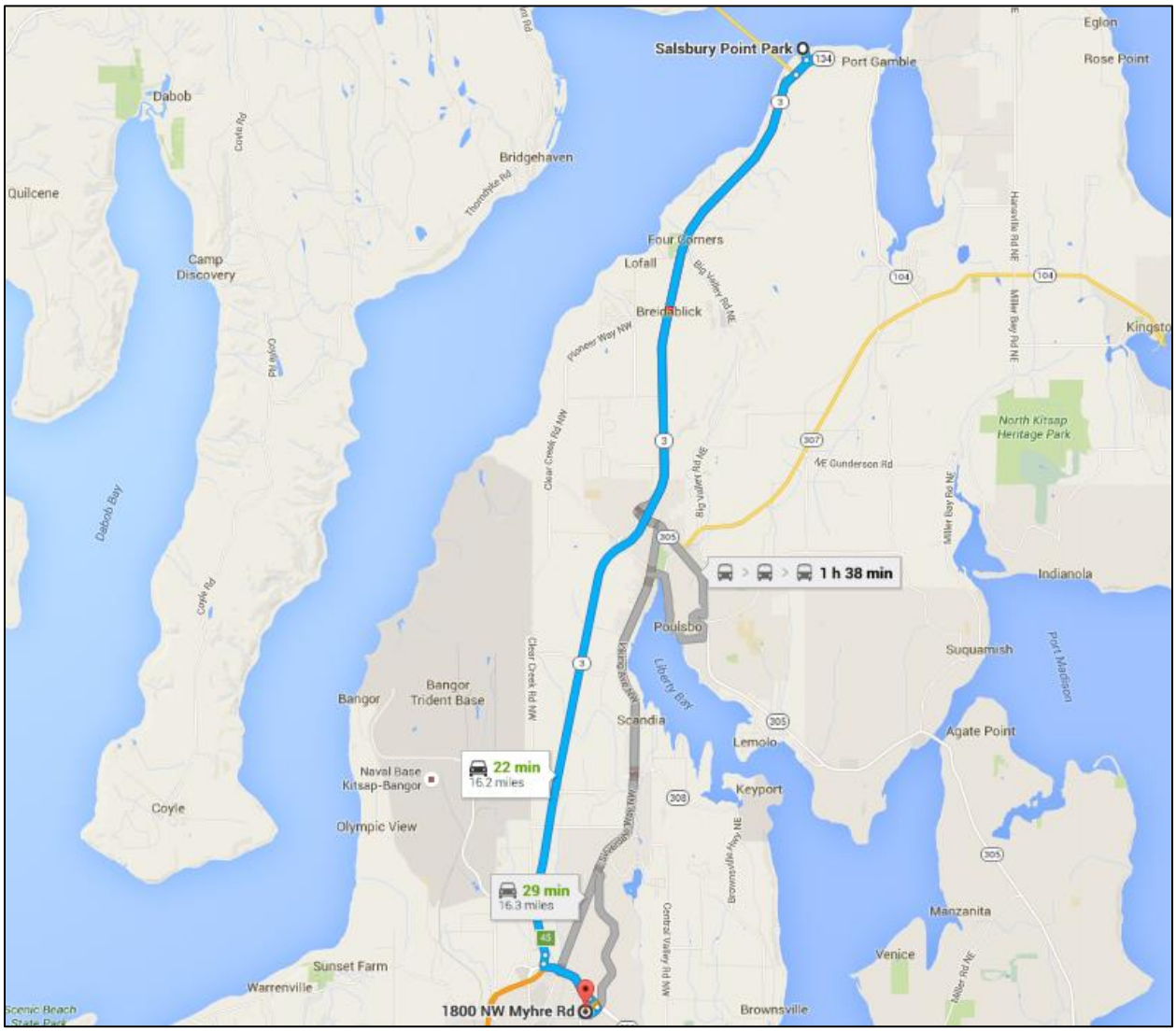
General Emergencies	911
Virginia Mason Medical Center, 1100 9th Ave., Seattle, WA 98101	206-223-6600
Emergency Room	206-583-6433
Virginia Mason Hyperbaric Chamber, 1100 9th Ave., Seattle, WA 98101	206-583-6543
Diver's Alert Network (DAN)	919-684-8111
Kitsap County Sheriff's Office	360-337-7101
Coast Guard Rescue	206-217-6001

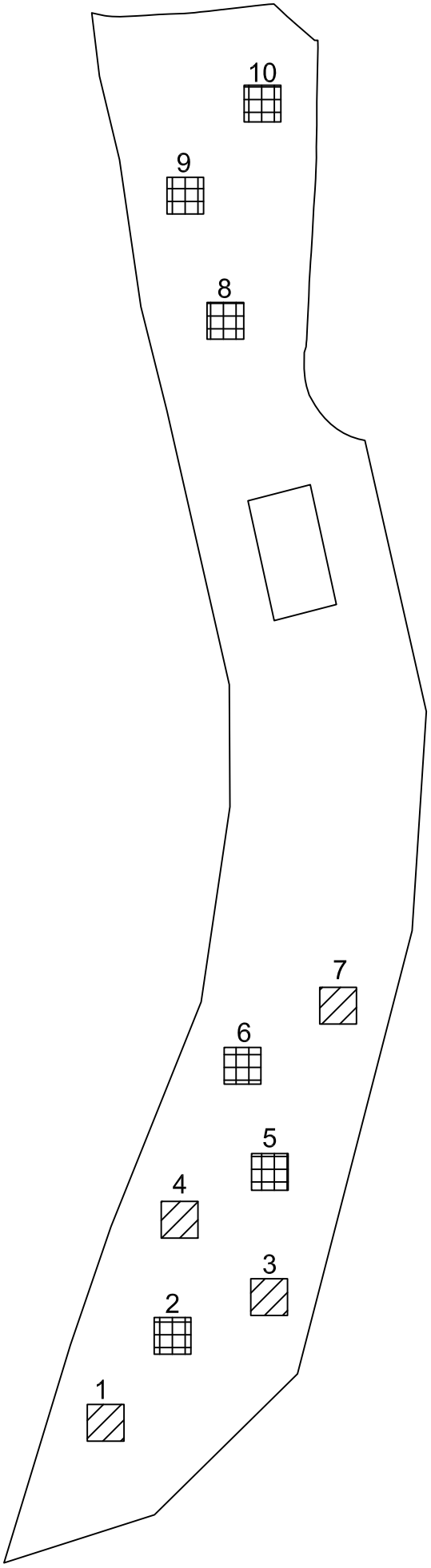
Directions to Harrison Medical Center (Silverdale) from Salsbury Point Park (16 miles):

Head south on Whitford Rd toward NE Beach Ln (0.2 mi);
Turn left onto Wheeler St NE (0.2 mi);
Turn right onto WA-104 W (0.4 mi);
Continue onto WA-3 S (13.8 mi);
Take exit 45 for Washington 303 toward Silverdale/East Bremerton (0.1 mi);
Use the left two lanes to turn left onto WA-303 S/NW Waaga Way (signs for East Bremerton);
Continue to follow WA-303 S (0.9 mi);
Take the Ridgetop Blvd exit (0.2 mi)

Turn right onto Ridgetop Blvd NW (0.2 mi)
Turn right (151 ft)
Turn left, Destination will be on the right

Harrison Medical Center
1800 NW Myhre Road
Silverdale, WA 98383
360-744-8800





	Plot Coordinates (State Plane NAD83)[1]	
Transplant Plot #	Northing	Easting
1	315515.9868	1211261.7614
2	315537.5217	1211278.1163
3	315546.7655	1211301.9203
4	315565.6802	1211279.9690
5	315577.5071	1211302.0069
6	315603.4116	1211295.3880
7	315618.1649	1211318.9404
8	315786.2459	1211291.1231
9	315817.2854	1211281.2757
10	315839.6131	1211300.2818
Rebar	315728.8593	1211307.4739

[1] Coordinates for centerpoint of plot

7 Eelgrass Transplant Plot @ 1.0 ft OC

5 Eelgrass Transplant Plot @ 1.5 ft OC

Location of rebar dropped from boat

Note: Plots 2, 5 and 7 to be planted with PUs utilizing jute twine.

Grette Associates
Port Gamble Year 3 Voluntary Eelgrass Transplant
Transplant Plot Layout and Coordinates
May 17, 2019