

**Mukilteo Multimodal Project**  
**Season 4 Marine Mammal Monitoring**  
**February 18, 2020**

In accordance with the February 2020, Washington State Ferries Mukilteo Multimodal Project Season 4 Incidental Harassment Authorization Request, qualified Protected Species Observers (PSOs) will be present on site at all times during pile removal and driving to monitor for marine mammal presence. Data to be collected includes marine mammal behavior, overall numbers of individuals observed, frequency of observation, and the time corresponding to the daily tidal cycle.

Distances to Zones of Exclusion (ZOE)/Shutdown Zones and Zones of Influence (ZOIs) are provided in Table 1. ZOEs/Shutdown Zones have been conservatively simplified in order to make PSO monitoring easier to implement during construction (Table 2).

**Table 1. Distances to ZOEs and ZOIs**

Method	Pile Size (in)	Level A ZOE (m)					Level B	
		LF Cetacean	MF Cetacean	HF Cetacean	Phocid	Otariid	Distance (km)	Area (km <sup>2</sup> )
Vibratory Removal	12	5.1	0.4	7.5	3.1	0.2	1.2	2.3
	24	12.1	1.1	18.0	7.4	0.5	8	66
Vibratory Driving	30	50.2	4.5	74.3	30.5	2.1	8	66
Shutdown Zones	All sizes	75	75	75	35	35	SRKW 1.2/8	----

**Table 2. Monitoring Zones**

ZOE/ZOI	Pile Size/Method	Species	Threshold	Distance to Threshold	Figure
ZOE-1	All sizes/methods	Seals, Sea Lions	Shutdown	35 m/115 ft.	1
ZOE-2	All sizes/methods	Whales, Dolphins, Porpoise	Shutdown	75 m/246 ft.	1
ZOI-1	12-inch timber/vibratory	All*	Level B Harassment	1.2 km/0.75 miles	1
ZOI-2	24-, 30-inch steel/vibratory	All*	Level B Harassment	8.0 km/5 miles	2

\*Shutdown zone for Southern Resident Killer Whale

## **Monitoring for Shutdown and to Record Level B Take**

WSF proposes the following in order to prevent Level A take in the ZOE (shutdown), and to record Level B take in the ZOIs:

- During all pile driving and removal, work will shut down if a Seal or Seal Lion approaches ZOE-1, or if Whales, Dolphins or Porpoises approach ZOE-2 (Figure 1/2). Work will not resume until the marine mammal has been observed leaving the Shutdown Zone, or if the animal has not been observed for at least 5 minutes.
- During 12-inch vibratory timber pile removal, two land-based PSOs will monitor from the lighthouse and the new ferry terminal observation deck (Figure 1).
- During 24- and 30-inch steel vibratory driving/removal, four land-based and one ferry-based PSO will monitor ZOE-1/2 and ZOI-2 (Figure 2/3).
- If visibility is limited (as determined by the WSF Lead PSO), 2 ferry-based PSOs may be used to monitor ZOI-2.
- The Lighthouse PSO shall have a spotting scope available to supplement eye and binocular monitoring. The scope shall have minimum zoom lens of 20-60 x 80mm and will be of comparable quality to Nikon or Vortex brands. A sturdy tripod to support the scope shall be used.
- To verify the required monitoring distance, the ZOE and ZOIs will be determined by using a range finder or hand-held global positioning system device.
- The ZOEs and ZOIs will be monitored for the presence of marine mammals 30 minutes before, during, and 30 minutes after any pile removal/installation activity.
- Monitoring will be continuous unless the contractor takes a significant break, in which case, monitoring will be required 30 minutes prior to restarting pile removal.
- If marine mammals are observed, their location within the ZOIs, and their reaction (if any) to pile removal or driving activities will be documented.

## **Monitoring to Prevent Killer Whale Take**

WSF proposes the following measures to prevent SRKW Level B acoustical harassment take:

- If SRKW (as identified by Orca Network, NMFS or another qualified source) approach the ZOIs during pile removal or driving, work will be paused until the SRKW exit the ZOIs to avoid Level B harassment take.
- If killer whales approach the ZOIs during pile removal or driving, and it is unknown whether they are SRKW or Transient, it shall be assumed they are SRKW in order to prevent SRKW Level B harassment take.

## **Minimum Qualifications for Protected Species Observers (Marine Mammal)**

Qualifications for PSOs include:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance. Use of binoculars may be necessary to correctly identify the target.
- Experience or training in the field identification of marine mammals (cetaceans and pinnipeds).
- Sufficient training, orientation or experience with the construction operation to provide for personal safety during observations.
- Ability to communicate orally, by radio or in person, with project personnel to provide real time information on marine mammals observed in the area as necessary.
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).
- Possess a smartphone or tablet capable of supporting ArcGIS Survey123 for marine mammal data collection (the survey forms will be provided by WSF).

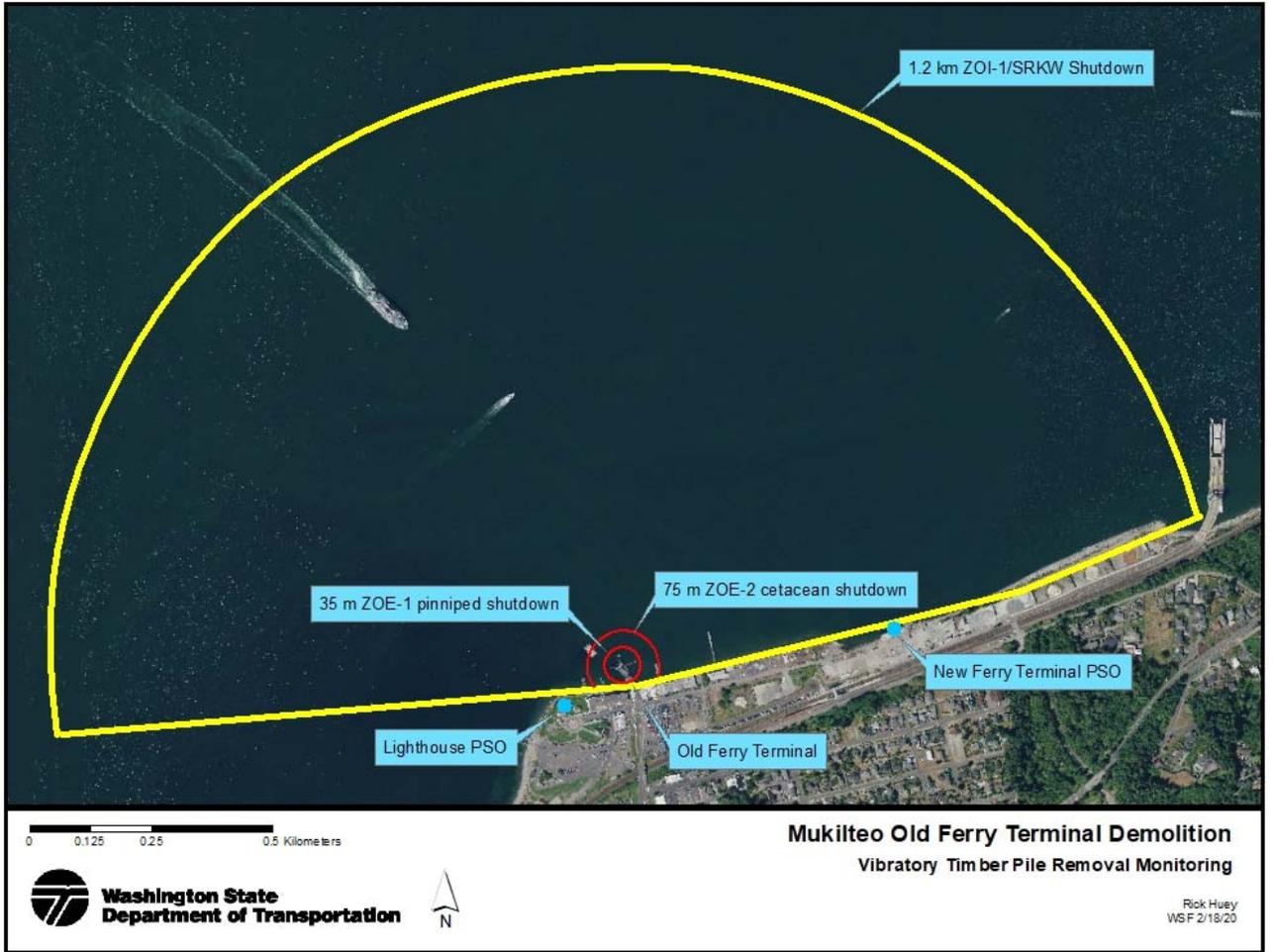
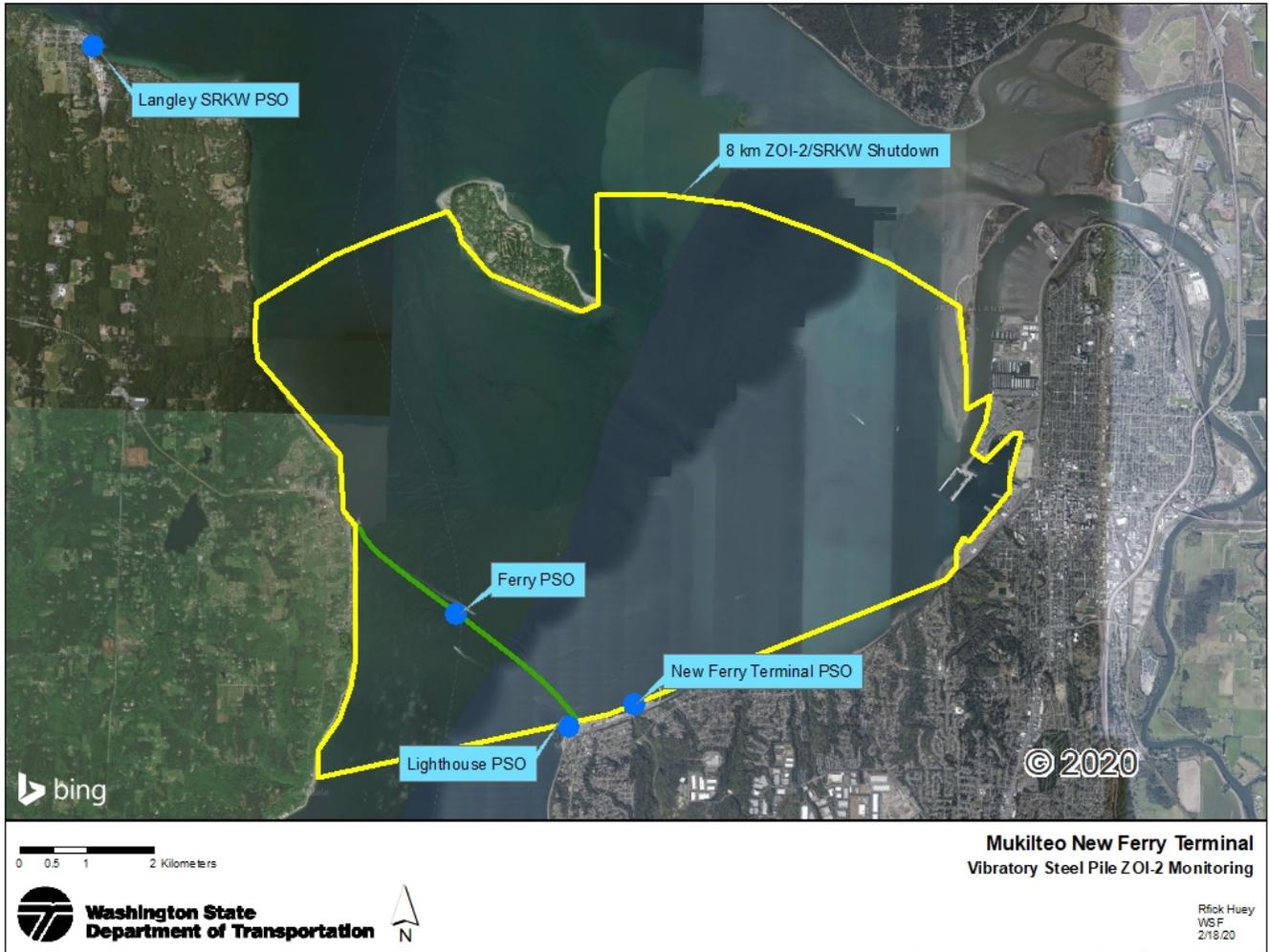
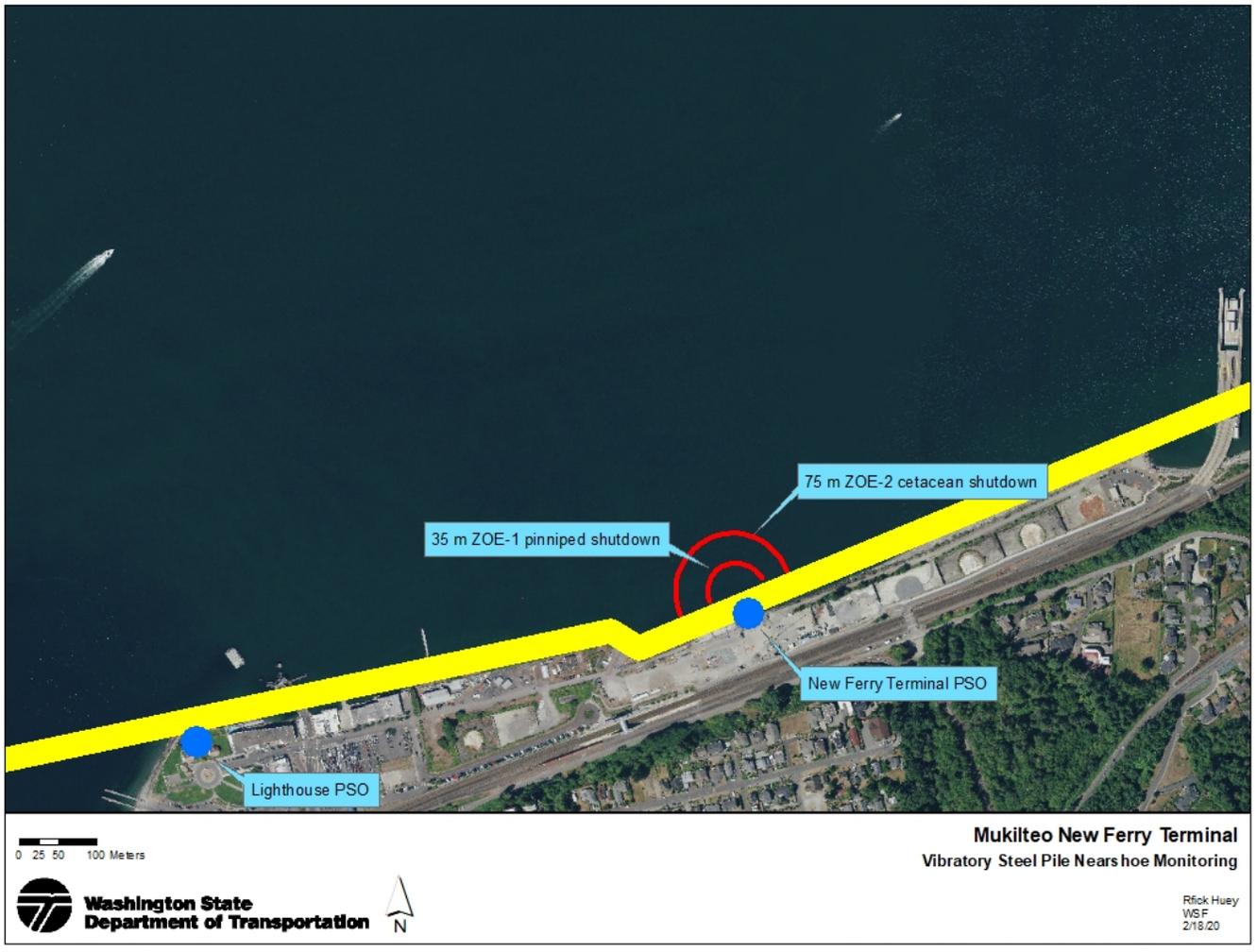


Figure 1 – 12-inch timber vibratory removal monitoring



**Figure 2 – 24- and 30-inch steel vibratory removal/driving monitoring**



**Figure 3 – 24- and 30-inch steel vibratory removal/driving nearshore monitoring**