

Memorandum

April 3, 2023

To: Katherine Chesick and Jill Macik, Seattle Department of Transportation

From: Michelle Havey and Reed Peloquin, Anchor QEA, LLC

cc: Jeff Bertram, Seattle Department of Transportation
Jody Robinson and Dean Beauchamp, Jacobs
Heather Page and Adam Carlson, Anchor QEA, LLC

Re: Waterfront Park Reconstruction Project (NWS-2019-703-WRD) Marine Mammal Monitoring Season 1 Report

This report provides the marine mammal monitoring results for Season 1 (Fall 2022 and Winter 2023) for the Waterfront Park Reconstruction Project (Project) located at Pier 58. Pier 58 is located on the downtown Seattle waterfront in Elliott Bay, Washington (Figure 1). In compliance with the Endangered Species Act and the Marine Mammal Protection Act, marine mammal monitoring was conducted during all in-water pile driving and removal activities for the Project. As part of the Marine Mammal Protection Act compliance, the National Marine Fisheries Service issued an Incidental Harassment Authorization (IHA) for in-water pile driving and removal, which allows take of marine mammals by harassment incidental to pile driving and removal activities in Elliott Bay.

Marine Mammal Monitoring Methods

Season 1 marine mammal monitoring methods and protocols were established per agency guidelines and permits, based on information in the following Project monitoring plan and permit documents:

- *Marine Mammal Monitoring Plan for the Waterfront Park Reconstruction Project* (Anchor QEA 2022)
- *Request for Incidental Harassment Authorization: Waterfront Park Reconstruction Project 2022–2023* (Anchor QEA 2021)
- *Marine Mammal Protection Act Incidental Harassment Authorization for the Pier 58 Reconstruction Project* (NOAA 2022)
- *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts* (NMFS 2018)

Under the 2022 IHA, the Project is required to monitor for 12 species (NOAA 2022). The 12 species are organized into the following five functional hearing groups:

- High-Frequency Cetaceans (Porpoises)
 - Dall's porpoise (*Phocoena dalli*)

- Harbor porpoise (*Phocoena phocoena*)
- Mid-Frequency Cetaceans (Dolphins and Whales)
 - Southern Resident distinct population segment (DPS; *Orcinus orca*) and transient killer whales
 - Common bottlenose dolphin
 - Long-beaked common dolphin (*Delphinus capensis*)
- Low-Frequency Cetaceans (Whales)
 - Gray whale (*Eschrichtius robustus*)
 - Humpback whale (*Megaptera novaeangliae*)
 - Minke whale (*Balaenoptera acutorostrata*)
- Otariid Pinnipeds (Sea Lions/Eared)
 - California sea lion (*Zalophus californianus*)
 - Steller sea lion (*Eumetopias jubatus*)
- Phocid Pinnipeds (Seals/Earless)
 - Elephant seal (*Mirounga angustirostris*)
 - Harbor seal (*Phoca vitulina*)

The monitoring area included an Exclusion Zone (Level A Take) and a Level B Harassment Zone (Level B Take) for each group. The two zones varied by the type of pile work and marine mammal functional hearing group. The Exclusion Zone was composed of areas where a Stop Work Order was to be issued if species were present; for killer whales and humpback whales, the Exclusion Zones were equal to the size of the Level B Harassment Zones for other marine mammal species (see Table 1). Within the Level B Harassment Zones, marine mammals were closely monitored, and take was documented and work allowed to continue; if the mammals were killer whales or humpback whales, a Stop/Change/Delay Work would be initiated. Exclusion Zones and Level B Harassment Zones were established for each hearing group based on the type of in-water pile driving and removal construction activities, including the following:

- Pile removal of steel H-piles and 14-inch timber piles via vibratory hammer
- Pile installation of 30-inch steel piles via vibratory hammer
- Pile installation of 30-inch steel piles via impact hammer

During Season 1, a vibratory hammer and an impact hammer were used for steel pile installation. Steel pile and timber pile removal via a vibratory hammer was also performed during Season 1 to complete the demolition of Pier 58. The Exclusion Zones and Level B Harassment Zones implemented during Season 1 are presented on Table 1 and shown in Figure 2 for vibratory removal of timber piles and steel-H piles, in Figure 3 for vibratory pile installation of 30-inch steel piles, and in Figure 4 for impact installation of 30-inch steel piles.

Strike counts from steel pile impact installation were initially limited to 1,200 strikes per day but were increased to 2,400 per day on November 7 for the remainder of Season 1. The acoustic monitoring of impact pile driving showed a much shorter strike duration than had been originally used, and a recalculation of the exclusion zones indicated little to no increase in zones using the measured strike duration and an increase in number of strikes. This had no effect on take and facilitated completion of the planned pile installation. The official count was kept by the lead monitor at the Project construction site; this daily count is available in Attachment A-1. On December 8, this limit was exceeded by 106 strikes. In response, the Exclusion Zone was extended to 10 meters for California sea lions and 100 meters for harbor seals. This increase did not result in any takes.

Table 1
Season 1 Exclusion Zone and Level B Harassment Zone Monitoring Thresholds, by Species Group and Pile Activity

Zone Threshold	Location to Monitor¹	Species Group
<i>Impact Installation (30-inch Steel Pile)</i>		
Exclusion Zone (Stop Work Order)	33 feet (10 m) to Source	Otariids
	33 feet (10 m) to Source	Mid-frequency cetaceans
	279 feet (85 m) to Source	Phocids
	508 feet (155 m) to Source	Low-frequency cetaceans
	606 feet (185 m) to Source	High-frequency cetaceans
	705 feet (215 m) to Source	Killer whales, humpback whales ²
Level B Harassment Threshold (Take)	From 705 feet (215 m) to Exclusion Zone for each hearing group	All hearing groups
<i>Vibratory Removal (Timber Pile and Steel-H Pile)</i>		
Exclusion Zone (Stop Work Order)	33 feet (10 m) to Source	All hearing groups
	4,458 feet/0.8 mile (1,359 m) to Source	Killer whales, humpback whales ²
Level B Harassment Threshold (Take)	From 4,459 feet (1,359 m) to Exclusion Zone for each hearing group	All hearing groups
<i>Vibratory Installation (30-inch Steel Pile)</i>		
Exclusion Zone (Stop Work Order)	33 feet (10 m) to Source	Otariids
	33 feet (10 m) to Source	Mid-frequency cetaceans
	49 feet (15 m) to Source	Phocids
	66 feet (20 m) to Source	Low-frequency cetaceans
	98 feet (30 m) to Source	High-frequency cetaceans
	24,137 feet/4.6 miles (7,357 m) to Source	Killer whales, humpback whales ²
Level B Harassment Threshold (Take)	From 24,137 feet/4.6 miles (7,357 m) to Exclusion Zone for each hearing group	All hearing groups

Notes:

1. Rounded up to nearest whole number

2. If killer whales (Southern Resident and transient) or humpback whales entered the Level A Zone (215 m for impact steel installation, 1,359 m for vibratory timber and steel-H pile removal, and 7,357 m for vibratory steel installation), a Stop/Change/Delay Work was initiated to prevent a take of these species.

m: meter

Sources: NMFS 2018; NOAA 2022

Monitoring was performed by up to four monitors depending on the activity as follows: three land-based observers and one ferry boat-based observer for steel pile vibratory installation and two land-based observers for timber and steel-H pile removal and steel pile impact installation.¹

One observer was located at the Project construction site during all vibratory and impact pile installation and vibratory pile removal. Two additional land-based observers conducted monitoring at designated viewpoints on the north and south entrances to Elliott Bay, with unobstructed views of the bay. The south monitoring point was located at the Alki Beach Pier, identified as the Alki Monitoring Site. The north monitoring point is located at the West 32nd Avenue City pump station, identified as the Magnolia Monitoring Site. The ferry boat-based observer was based on the Seattle to Bainbridge Island ferry route, identified as the Ferry Monitoring Site. The monitoring sites are shown in Figure 3.

Trained marine mammal monitors from Anchor QEA, LLC, and The Greenbusch Group, Inc, used binoculars to search the monitoring zones for the presence of marine mammals during pile driving and removal activities. Observations and positions of marine mammals were recorded on an electronic daily monitoring form within the Esri Survey123 application on each observer's phone, which was developed prior to program implementation for efficient and consistent data collection. The following data were collected:

- Date
- Time monitoring activity begins and ends
- Site
- Construction activity during monitoring period
- Weather conditions and environmental conditions that could deter or prevent marine mammal detections
- Marine mammal species observed and number of species and sex and age class, if possible
- Time, duration, and location of marine mammals observed
- Observable species behavior during pile driving and removal activities
- Pile-related activities taking place during monitoring
- Distances from pile activities to marine mammals
- Communication between the observers and the contractor or Seattle Department of Transportation

¹ From October 12 to November 30, there was a fifth observer at Pier 63 monitoring for a concurrent project.

- Notable human activity in the area
- Reason a Stop Work Order was or was not initiated, if applicable

The locations of marine mammal sightings were also noted on grid maps. Take numbers were tallied each day to ensure the Project did not exceed the authorized number of incidental take for each species.

Waterfront Park Reconstruction Project Season 1 Marine Mammal Monitoring Results

Marine mammal monitoring during vibratory removal of timber and steel piles, vibratory installation of steel piles, and impact steel pile installation activities was performed by trained marine mammal monitors from Anchor QEA and The Greenbusch Group for 47 days between October 3, 2022, and February 15, 2023. Vibratory and impact installations were the primary activities performed during Season 1, with vibratory removal only being performed for the first 3 days of the season. On 3 monitoring days, October 27, December 2, and January 3, hammer activity was scheduled but did not occur due to changes in the work plan. Overall, vibratory pile installation and removal of steel piles occurred on 36 monitoring days. On 2 monitoring days, the vibratory hammer was used to remove timber piles. On 28 monitoring days, both vibratory and impact installations were conducted, with 9 days of only impact hammer activity. On most days, pile activity occurred off and on throughout the monitoring period, with breaks in hammer activity ranging from fewer than 30 minutes to several hours. A total of 2 timber and 12 steel H-piles were removed from Pier 58 using a vibratory hammer; removal occurred over 3 days from October 3 to October 5, 2022. A total of seventy-seven 30-inch steel piles were installed using a vibratory and impact hammer.²

Throughout Season 1, 4 of the 12 potential marine mammal species were observed during the monitoring period: California sea lion, Steller sea lion, harbor seal, and killer whale (Southern Resident DPS and transient). Three species were observed in the Level B Harassment Zone during pile driving and removal activities. Total Level B takes documented during monitoring included 92 California sea lions, 130 harbor seals, and 1 Steller sea lion. Overall, no observable changes in behavior in the marine mammal species were noted during vibratory install or removal. Monitors did observe two instances of California sea lions located approximately 3,600 meters away from the Project site changing their swimming direction in response to the vibratory hammer being engaged. Three California sea lions and one harbor seal that entered their respective Level B Harassment Zones during impact pile driving were observed quickly changing directions to exit the Level B Harassment Zone. The general locations where marine mammals were observed during this monitoring season are presented in Figures 5 and 6.

² An impact hammer was used to complete installation for most, but not all, of the installed piles.

During Season 1 monitoring, the number of takes documented for California sea lions, harbor seals, and Steller sea lions were considerably below the maximum number of Level B takes authorized for these species in the Project IHA for Season 1 (NOAA 2022). There were no Level A takes for any observed species in Season 1. Table 2 compares documented take per species to the amount of authorized Level A and Level B takes.

Table 2
Season 1 Take Per Species

Species	Documented Level A Take	IHA-Authorized Level A Take	Documented Level B Take	IHA-Authorized Level B Take
California Sea Lion	0	0	92	700
Harbor Seal	0	40	130	660
Steller Sea Lion	0	0	1	140

Stop Work Initiation

In Season 1, work was only delayed on November 10, 2022, for 15 minutes due to killer whales entering the Exclusion Zone; work did not resume until all monitors confirmed the killer whales were observed outside of the Exclusion Zone. Killer whales were also observed approaching and within Elliott Bay on November 7, November 9, December 5, and December 9; however, no pile activity was occurring during those times so a Stop/Change/Delay Work was not warranted.

California Sea Lions

The number of California sea lion takes from all four monitoring sites combined ranged from 0 to 7 per day, with a per-day average of 2.³ Excluding the monitoring days with no pile driving due to mechanical issues, there were 9 monitoring days when no sea lion takes were documented. More than half (49 of 92) of California sea lion takes were observed from the Alki Monitoring Site, where they were frequently observed foraging and resting in the nearshore environment.

On three occasions, California sea lions entering the Level B Harassment Zone during impact pile driving were observed quickly changing directions to leave the area. Additionally, monitors observed two instances of California sea lions located approximately 3,600 meters away from the Project site changing their swimming direction in response to the vibratory hammer being engaged.

In addition to the 92 California sea lion takes documented during the monitoring, 169 California sea lions were observed during the monitoring period that were not documented takes because they

³ The per-day average is rounded to nearest whole number.

were observed more than 30 minutes outside of pile driving and removal activities, outside the Level B Harassment Zone, or were already documented as takes for the day.

California sea lion information from the daily monitoring forms is presented in the tables in Attachment A. Table 3 summarizes California sea lion takes per monitoring site during Season 1 monitoring.

Table 3
Summary of Season 1 California Sea Lion Takes, Per Monitoring Site

Monitoring Site	Total Level B Takes	Minimum and Maximum Number of Level B Takes Per Day During Monitoring Days
Construction	29	0 to 7
Alki	48	0 to 5
Magnolia	8	0 to 2
Ferry	7	0 to 1
Total	92	

Harbor Seals

Harbor seal takes from all four monitoring sites combined ranged from 0 to 15 per day, with a per-day average of 3.⁴ Excluding the monitoring days with no pile driving due to mechanical issues, there were 14 monitoring days when no harbor seal takes were documented. For a single monitoring site, the highest number of total harbor seal observations (124) and takes (65) and the highest number of takes in a single day (9) were observed from the Magnolia Monitoring Site.

There were no observable changes in harbor seal behavior during vibratory removal or installation and only one instance of a harbor seal reacting to the impact hammer by changing swimming direction.

In addition to the 130 harbor seal Level B takes documented during the monitoring, 218 harbor seals were observed during the monitoring period that were not documented takes because they were observed more than 30 minutes outside of pile driving and removal activities, outside the Level B Harassment Zone, or were already documented as takes for the day.

Harbor seal information from the daily monitoring forms is presented in the tables in Attachment A. Table 4 summarizes harbor seal takes per monitoring site during Season 1 monitoring.

⁴ The per-day average is rounded to nearest whole number.

Table 4
Summary of Season 1 Harbor Seal Takes, Per Monitoring Site

Monitoring Site	Total Level B Takes	Minimum and Maximum Number of Level B Takes Per Day During Monitoring Days
Construction	13	0 to 2
Alki	32	0 to 5
Magnolia	65	0 to 9
Ferry	20	0 to 3
Total	130	

Steller Sea Lion

Steller sea lions were observed on 4 monitoring days during Season 1 monitoring; one of these observations on December 8 from the Alki Monitoring Site resulted in a Level B take. Steller sea lions were also observed at the Alki Monitoring Site on November 2 and December 7, and from the Ferry Monitoring Site on December 5. However, none of these observations resulted in takes due to the work type being conducted on those days. Steller sea lion information from the daily monitoring forms is presented in the tables in Attachment A.

Killer Whales

Killer whales (Southern Resident or transient) were observed on 6 monitoring days, from November 7, 2022, to November 10, 2022. Because no takes were authorized for Southern Resident killer whales, and marine mammal monitors could not confirm observations of transient versus Southern Resident DPS, all killer whale observations were treated as Southern Resident DPS. Killer whales entered the Exclusion Zone on November 7, November 9, December 5, and December 9; however, none of these incursions resulted in a work delay or stop work because there was no pile activity at that time. One incursion on November 10 led to a 15-minute delay in work. As a result of this action, no killer whale observations were documented as takes. Typically, killer whales were observed in the mid-channel, but sometimes they would favor the Elliot Bay side of the channel as they moved through the area. All observations were recorded either outside of the Exclusion Zone or during no pile activity.

Killer whale information from the daily monitoring forms is presented in the tables in Attachment A.

Waterfront Park Reconstruction Project Season 1 Supporting Details

Detailed data collected during Season 1 monitoring are presented in Attachment A, as follows:

- Table A-1 provides a summary of the daily log kept by the lead Protected Species Observer located at the Project site.

- Table A-2 provides a daily summary of pile driving and removal activity, weather conditions during the monitoring period, marine mammal species observed, time and duration of observations, distance from pile driving and removal activities, and species behavior.
- Table A-3 provides a daily summary of California sea lion Level B takes, observations that did not include takes, and the totals.
- Table A-4 provides a daily summary of harbor seal Level B takes, observations that did not include takes, and the totals.
- Table A-5 provides a daily summary of Steller sea lion Level B takes, observations that did not include takes, and the totals.
- Table A-6 provides a daily summary of killer whale (Southern Resident and transient) Level B takes, observations that did not include takes, and the totals.

As noted in Table A-2, some monitoring days included fog, rain, or wind conditions that made monitoring more challenging than during clear weather periods. The only instance of weather conditions leading to a stop work was on December 20 for 1.5 hours; on this day, snow fall was heavy enough to critically limit visibility. In addition, monitoring was conducted during a range of tidal cycles; however, no changes in marine mammal behavior were identified based on tidal fluctuations.

References

Anchor QEA, LLC, 2021. *Request for Incidental Harassment Authorization: Waterfront Park Reconstruction Project 2022–2023*. Waterfront Park Reconstruction Project. 2021.

Anchor QEA, 2022. *Marine Mammal Monitoring Plan*. Waterfront Park Reconstruction Project. November 2022.


NMFS (National Marine Fisheries Service), 2018. *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts*. U.S. Dept. of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59, 178 p.

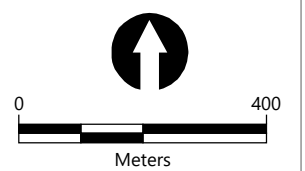
NOAA (National Oceanic and Atmospheric Administration), 2022. *Marine Mammal Protection Act Incidental Harassment Authorization for the Pier 58 Reconstruction Project*. May 2022.

Figures

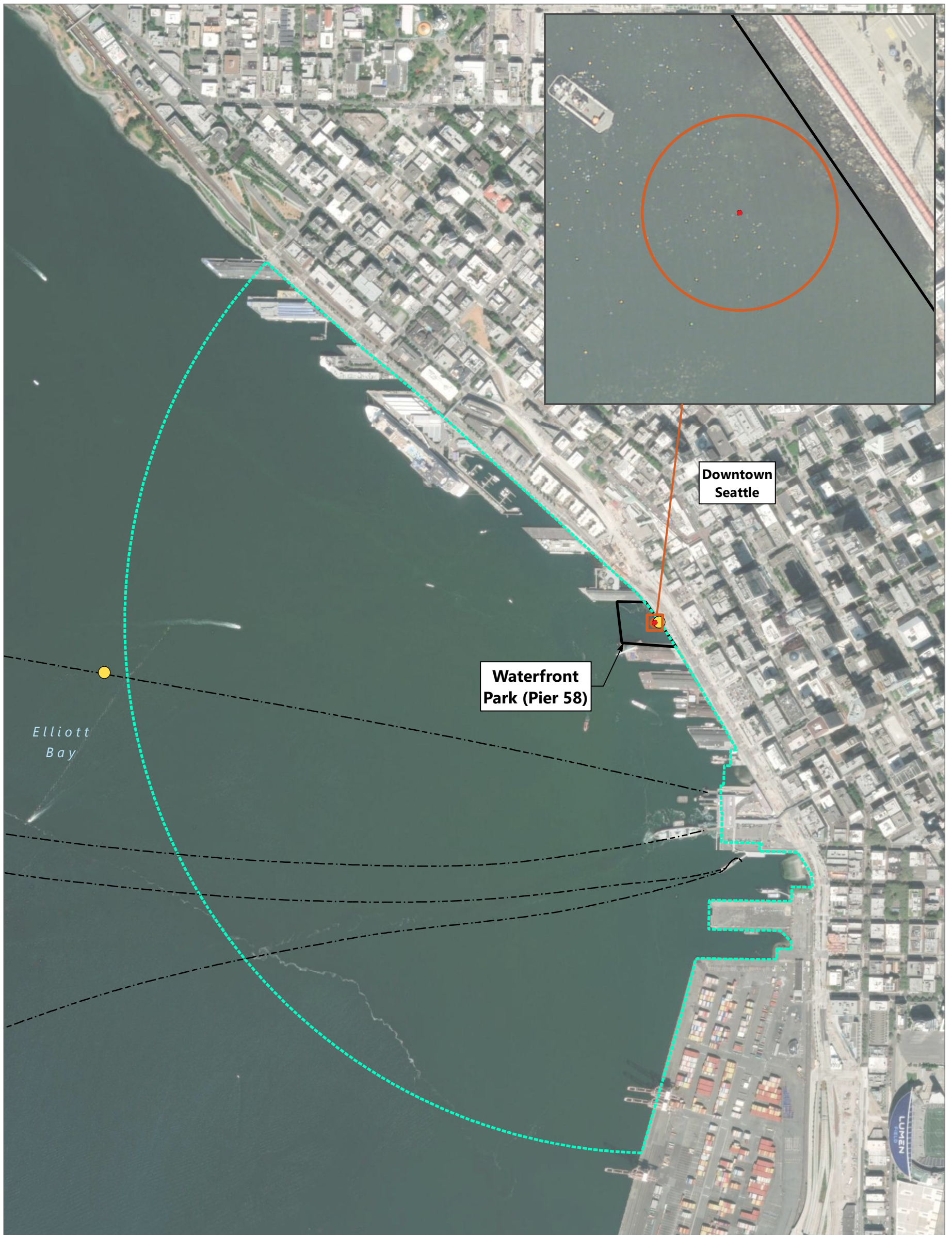


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 Waterfront Park (Pier 58)



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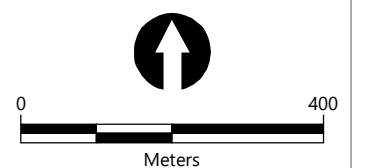


LEGEND:

- Hammer Location
- Marine Mammal Monitor Site
- Ferry Route
- ▭ Waterfront Park (Pier 58)
- Level B Harassment Zone – All Hearing Groups**
- ▭ Vibratory Removal (Timber Piles and Steel H-Piles): 1,359 meters
- Exclusion Zones**
- ▭ All Hearing Groups: 10 meters
- ▭ Killer Whales and Humpback Whales: 1,359 meters

NOTES:

1. Exclusion Zones were adjusted as needed, based on location of hammer operations.

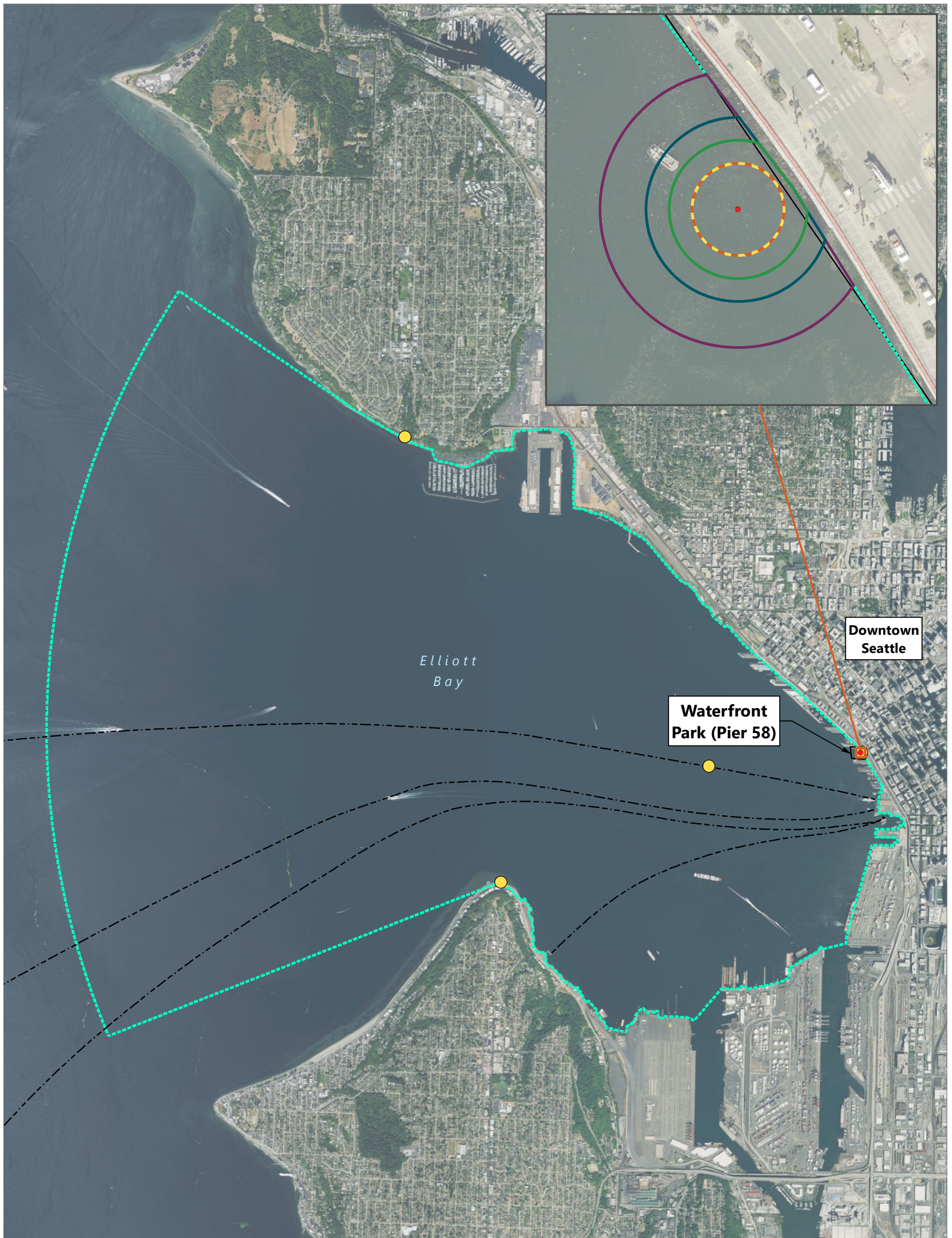


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Figure 2
Exclusion and Level B Harassment Zones for Vibratory Removal of Timber Piles and Steel H-Piles

Season 1 Marine Mammal Report
 Waterfront Park Reconstruction Project

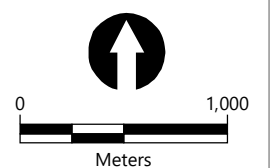


LEGEND:

- Hammer Location
- Marine Mammal Monitor Site
- Ferry Route
- Waterfront Park (Pier 58)
- Level B Harassment Zone – All Hearing Groups**
- ▬ Vibratory Installation (Steel Piles): 7,357 meters
- Exclusion Zones**
- ▬ Otariid Pinnipeds: 10 meters
- ▬ Mid-Frequency Cetaceans: 10 meters
- ▬ Phocid Pinnipeds: 15 meters
- ▬ Low-Frequency Cetaceans: 20 meters
- ▬ High-Frequency Cetaceans: 30 meters
- ▬ Killer Whales and Humpback Whales: 7,357 meters

NOTES:

1. Exclusion Zones were adjusted as needed, based on location of hammer operations.

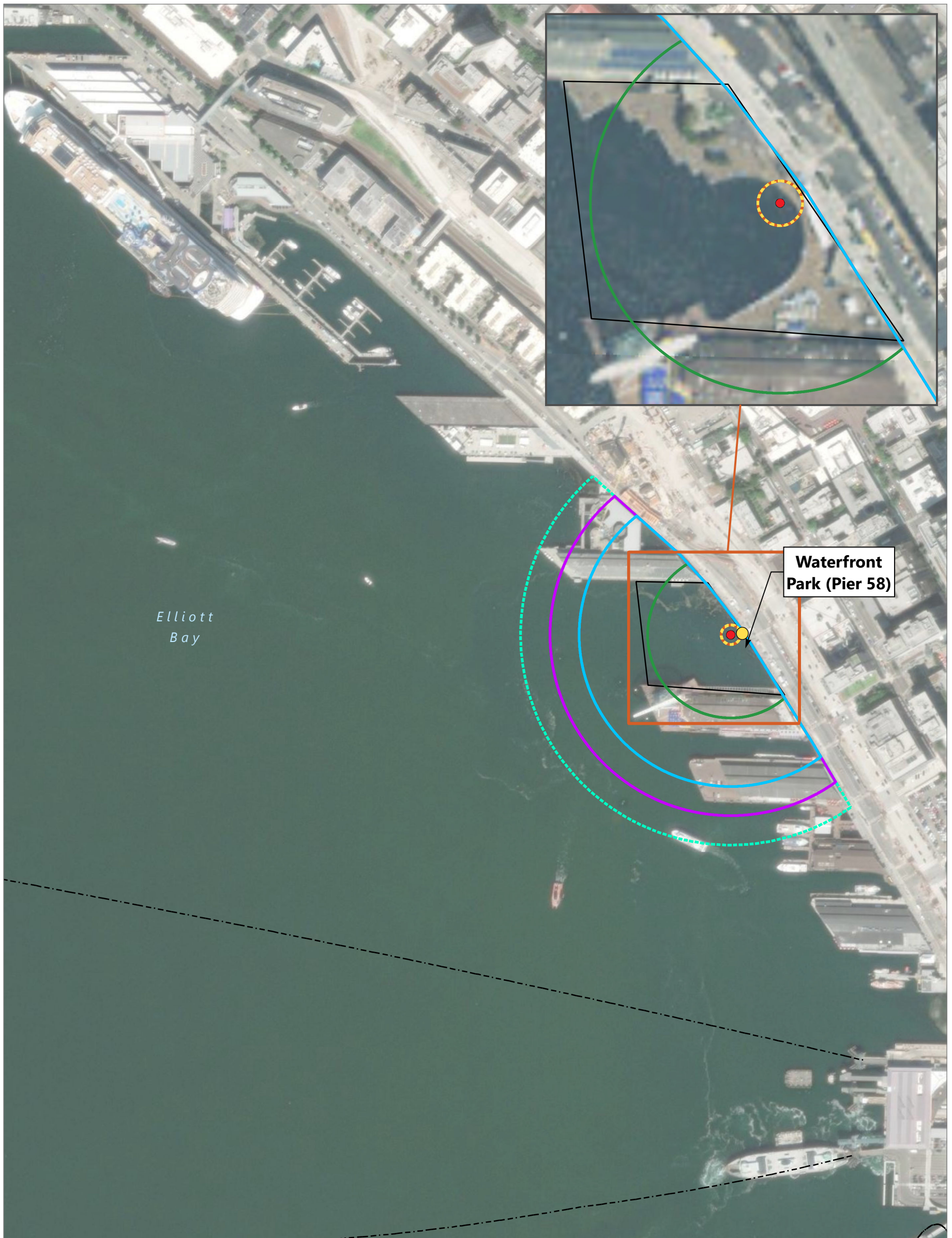


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Figure 3
Exclusion and Level B Harassment Zones for Vibratory Installation of Steel Piles

Season 1 Marine Mammal Report
 Waterfront Park Reconstruction Project

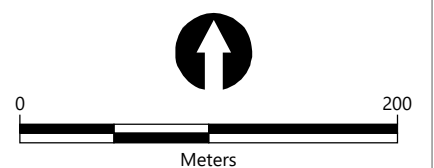


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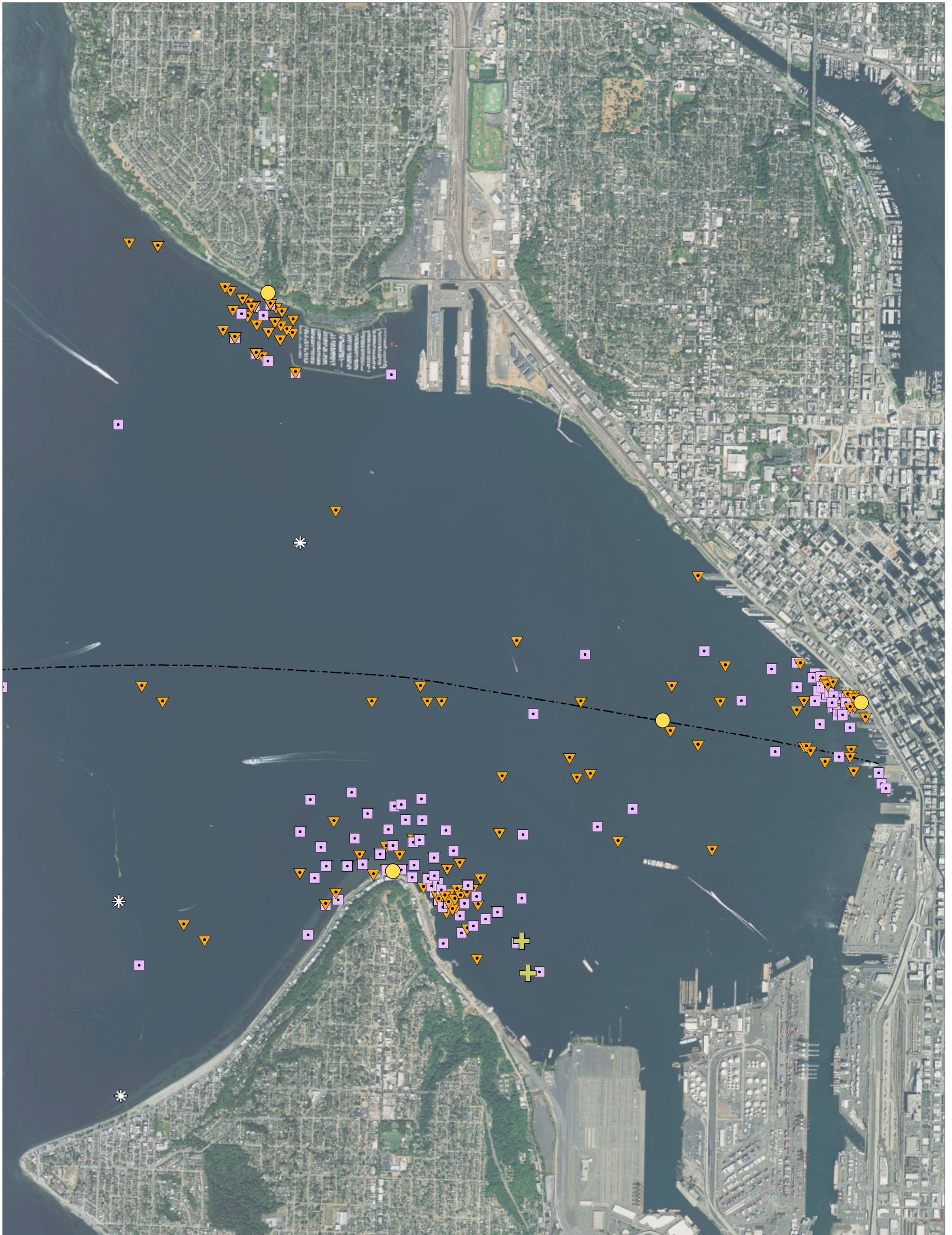
- Hammer Location
- Marine Mammal Monitor Site
- Ferry Route
- Waterfront Park (Pier 58)
- Level B Harassment Zone – All Hearing Groups**
- Impact Installation (Steel Pile): 215 meters
- Exclusion Zones**
- Otariid Pinnipeds: 10 meters
- Mid-Frequency Cetaceans: 10 meters
- Phocid Pinnipeds: 85 meters
- Low-Frequency Cetaceans: 155 meters
- High-Frequency Cetaceans: 185 meters
- Killer Whales and Humpback Whales: 215 meters

NOTES:




1. Exclusion Zones were adjusted as needed, based on location of hammer operations.








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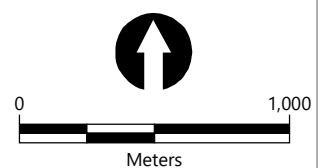
-  Mooring Buoy
-  Marine Mammal Monitor Site
-  Seattle-Bainbridge Island Ferry Route

Marine Mammal Sightings

-  California Sea Lion (Otariid/Eared)
-  Harbor Porpoise (High-Frequency Cetacean)
-  Harbor Seal (Phocid/Earless)
-  Killer Whale (Mid-Frequency Cetacean)
-  Stellar Sea Lion (Otariid/Eared)

NOTE:

1. Approximate locations are where marine mammals were observed; many of the symbols represent multiple sightings over the monitoring period.

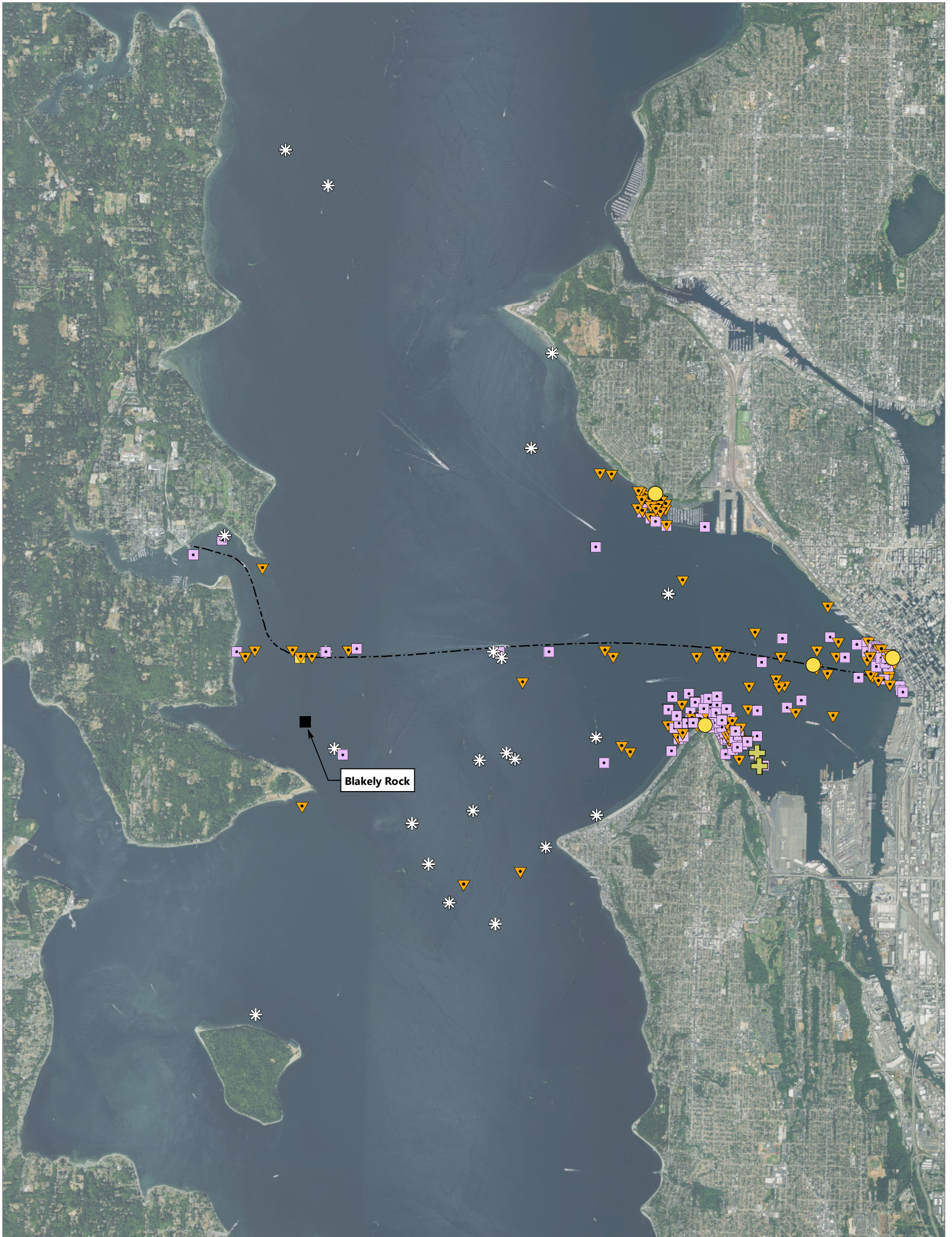


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Figure 5
Monitoring Locations and Marine Mammal Sightings Elliott Bay

Season 1 Marine Mammal Report
 Waterfront Park Reconstruction Project

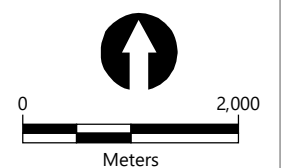


LEGEND:

-  Mooring Buoy
-  Marine Mammal Monitor Site
-  Seattle-Bainbridge Island Ferry Route
- Marine Mammal Sightings**
-  California Sea Lion (Otariid/Eared)
-  Harbor Porpoise (High-Frequency Cetacean)
-  Harbor Seal (Phocid/Earless)
-  Killer Whale (Mid-Frequency Cetacean)
-  Stellar Sea Lion (Otariid/Eared)

NOTE:

1. Approximate locations are where marine mammals were observed; many of the symbols represent multiple sightings over the monitoring period.



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Figure 6
Monitoring Locations and Marine Mammal Sightings Puget Sound Main Channel

Season 1 Marine Mammal Report
 Waterfront Park Reconstruction Project

Attachment A
Monitoring Data

Table A-1
Waterfront Park Pile Removal and Pile Driving Activity

Date	Daily Monitoring Start Time	Daily Monitoring Stop Time	Daily Notes	Pile Activity	Pile Type	Activity Start Time	Activity Stop Time	Time Period Notes (shutdowns/delays/WQ issues/pile names)	Strike Count During Time Period
Monday, October 3, 2022	12:15	14:35	7 piles partially removed using vibratory hammer. 1 pile completely pulled out of the water.	Vibratory Removal	Steel H-Pile	13:01	14:04	H-Piles: 1-8.	-
Tuesday, October 4, 2022	7:13	14:43	Finished removing H piles from previous day along with 3 more piles removed.	Vibratory Removal	Steel H-Pile	8:16	9:07	H-Piles: 1,2,3,4,5	-
				Vibratory Removal	Steel H-Pile	11:50	12:24	H-Piles: 6,7	-
				Vibratory Removal	Timber	13:38	13:40	Pile: 8	-
				Vibratory Removal	Steel H-Pile	13:45	14:13	H-Piles: 9, 10, 11	-
Wednesday, October 5, 2022	7:38	8:44	Finished removing 1 H pile from previous day along with 1 more timber pile.	Vibratory Removal	Steel H-Pile	8:08	8:12	H-Pile: 1	-
				Vibratory Removal	Timber	8:14	8:14	Pile: 2	-
Wednesday, November 2, 2022	7:55	15:19	Vibratory installation of 2 piles. Impact installation of 1 pile.	Vibratory Installation	Steel 30-inch	10:36	11:10	Pile: Y13B	-
				Impact Installation	Steel 30-inch	12:12	13:25	Pile: Y13B	1228
				Vibratory Installation	Steel 30-inch	14:30	14:49	Pile: D11	-
Thursday, November 3, 2022	7:57	16:00	Attempted vibratory installation of 1 pile. Impact installation of 1 pile.	Impact Installation	Steel 30-inch	9:04	10:07	Pile: D11	887
				Vibratory Installation	Steel 30-inch	13:09	15:30	Pile: X3, several attempts were made to installation this pile due to refusal.	-
Friday, November 4, 2022	7:58	14:56	Impacts to complete the preliminary installation on pile X3. Vibratory installation and impact installation of 2 more piles.	Impact Installation	Steel 30-inch	9:03	9:55	Pile: X3, impact hammer used to complete preliminary installation.	759
				Vibratory Installation	Steel 30-inch	11:52	12:39	Pile: X5	-
				Impact Installation	Steel 30-inch	14:10	14:26	Pile: X5	537
Monday, November 7, 2022	7:03	15:55	Vibratory installation of 4 piles. Killer whales moved into stop work zone; resulted in a short pause but did not stop work in progress.	Vibratory Installation	Steel 30-inch	8:49	9:09	Pile: 1. Killer whales in stop work zone 10:03-10:25	-
				Vibratory Installation	Steel 30-inch	10:47	12:08	Piles: 2, 3	-
				Vibratory Installation	Steel 30-inch	14:50	15:25	Pile: 4	-
Tuesday, November 8, 2022	12:15	15:17	Barge moved from Pier 63 to continue work at Pier 58; vibratory installation of 1 pile.	Vibratory Installation	Steel 30-inch	14:01	14:20	Pile: 1	-
Wednesday, November 9, 2022	7:16	15:45	Vibratory installation of 3 piles.	Vibratory Installation	Steel 30-inch	8:54	9:40	Pile: 1, killer whales spotted approaching exclusion zone as work ended.	-
				Vibratory Installation	Steel 30-inch	12:57	13:39	Pile: X4, hit refusal	-
				Vibratory Installation	Steel 30-inch	14:48	15:15	Pile: 3	-
Thursday, November 10, 2022	7:07	15:26	Installation of 5 piles; killer whales spotted outside the Exclusion Zone during the 30-minute pre-monitoring period.	Impact Installation	Steel 30-inch	8:12	8:19	Pile: X4: PPM approved to finish initial installation with impact hammer due to refusal.	167
				Vibratory Installation	Steel 30-inch	10:16	10:31	Pile: 2	-
				Vibratory Installation	Steel 30-inch	11:34	11:54	Pile: 3, Orca spotted in work zone at 11:10. Work delayed for approximately 10 minutes. All clear given at 11:34.	-
				Vibratory Installation	Steel 30-inch	13:22	13:33	Pile: 4	-
				Vibratory Installation	Steel 30-inch	14:34	14:56	Pile: 5	-
Friday, November 11, 2022	7:08	11:44	Restrikes on 4 test piles.	Impact Installation	Steel 30-inch	8:35	9:10	Piles: X3, X5	1296
				Impact Installation	Steel 30-inch	10:30	11:44	Piles: Y13B, D11	154
Monday, November 14, 2022	7:13	15:36	Vibratory installation of 5 piles.	Vibratory Installation	Steel 30-inch	9:12	10:29	Piles: F8, X12	-
				Vibratory Installation	Steel 30-inch	12:09	15:06	Piles: X13, Y13A, E12	-

Table A-1
Waterfront Park Pile Removal and Pile Driving Activity

Date	Daily Monitoring Start Time	Daily Monitoring Stop Time	Daily Notes	Pile Activity	Pile Type	Activity Start Time	Activity Stop Time	Time Period Notes (shutdowns/delays/WQ issues/pile names)	Strike Count During Time Period
Tuesday, November 15, 2022	7:15	15:54	Vibratory installation of 5 piles; impact installation of 3 piles.	Vibratory Installation	Steel 30-inch	8:18	9:13	Piles: E11, E10	-
				Vibratory Installation	Steel 30-inch	10:31	12:05	Piles: D12, D10, D13	-
				Impact Installation	Steel 30-inch	13:45	15:24	Piles: D13, D12, D10, E11	2400
Wednesday, November 16, 2022	7:16	13:59	Vibratory installation of 2 piles; impact installation of 5 piles.	Vibratory Installation	Steel 30-inch	8:22	10:12	Piles: Z14, Z15	-
				Impact Installation	Steel 30-inch	11:07	13:29	Piles: Z14, Z15, E12, E11, E10	2400
Thursday, November 17, 2022	7:18	10:59	Impact installation of 5 piles.	Impact Installation	Steel 30-inch	8:28	10:29	Piles: E10, E11, X13, Y13A, X12	2400
Tuesday, November 22, 2022	7:25	13:54	Vibratory installation of 1 pile; impact installation of 4 piles.	Vibratory Installation	Steel 30-inch	9:01	9:21	Pile: F6	-
				Impact Installation	Steel 30-inch	10:10	11:17	Pile: F6	1166
				Impact Installation	Steel 30-inch	12:23	13:24	Piles: F9, X9, X8	1224
Wednesday, November 23, 2022	7:26	10:44	Impact installation of 4 piles.	Impact Installation	Steel 30-inch	8:00	10:10	Piles: X12, X11, X10, X9	2400
Monday, November 28, 2022	7:33	12:21	Impact installation of 4 piles.	Impact Installation	Steel 30-inch	8:56	11:51	Piles: Y13A, X8, X7, X6	2400
Tuesday, November 29, 2022	7:34	13:21	Impact installation of 4 piles.	Impact Installation	Steel 30-inch	8:27	9:41	Piles: F6, X6. Lead PSO observed the work barge discharging rust-colored ballast water, which resulted in mild turbidity around the front of the barge from 0835-0845 during the F6 impact. Impacting event on X6 ended early due to a damaged a fuel line that resulted in fuel spilling into the water. The contractor crew was quick to respond to the spilled fuel; there was no noticeable sheen after their response. Barge discharged ballast water again from 0945-0955.	323
				Impact Installation	Steel 30-inch	11:07	13:21	Piles: X6, X4, H3	2,077
Wednesday, November 30, 2022	7:36	11:42	Impact installation of 4 piles.	Impact Installation	Steel 30-inch	8:30	11:12	Piles: H2, H1, X2, X1. Work paused for 2 minutes during H2 impact due to excess vibrations on pier 57.	2400
Thursday, December 1, 2022	7:37	11:17	Impact installation of 2 piles. 1 pile partially removed and reinstalled to correct the alignment. The vibratory hammer created excess vibrations on Pier 57 that resulted in several pauses in work.	Impact Installation	Steel 30-inch	8:21	8:44	Pile: X1	144
				Vibratory Installation	Steel 30-inch	9:11	9:49	Pile: H1. Resetting out of alignment Pile: that was already installed	-
				Impact Installation	Steel 30-inch	10:29	10:47	Pile: H1. Reinstallation of pile	751
Monday, December 5, 2022	7:41	15:09	Vibratory installation of 5 piles; impact installation of 3 piles. Killer whales spotted around stop work zone during vibratory installation; the killer whales moved into the Exclusion Zone while the crew was on lunch break and left before the crew returned.	Vibratory Installation	Steel 30-inch	9:08	11:17	Piles: G1, G2, G3. Killer whales spotted outside stop work zone during the installation of these piles. Moved into stop work zone after the completion of vibratory installs.	-
				Impact Installation	Steel 30-inch	12:20	13:30	Piles: G1, G2, G3.	1730
				Vibratory Installation	Steel 30-inch	14:18	14:39	Pile: G4	-
Tuesday, December 6, 2022	7:42	14:41	Vibratory installation of 3 piles. Impact installation of 3 piles.	Vibratory Installation	Steel 30-inch	9:02	10:33	Piles: G5, G6	-
				Impact Installation	Steel 30-inch	11:59	13:17	Piles: G6, G5, G4	2259
				Vibratory Installation	Steel 30-inch	13:56	14:11	Pile: F1	-

Table A-1
Waterfront Park Pile Removal and Pile Driving Activity

Date	Daily Monitoring Start Time	Daily Monitoring Stop Time	Daily Notes	Pile Activity	Pile Type	Activity Start Time	Activity Stop Time	Time Period Notes (shutdowns/delays/WQ issues/pile names)	Strike Count During Time Period
Wednesday, December 7, 2022	7:44	15:41	Vibratory installation of 4 piles. Impact installation of 4 piles.	Impact Installation	Steel 30-inch	8:15	9:08	Piles: G4, F1	1201
				Vibratory Installation	Steel 30-inch	10:33	12:27	Piles: F2, F3, F4	-
				Impact Installation	Steel 30-inch	13:21	14:03	Piles: F4, F3	1192
				Vibratory Installation	Steel 30-inch	14:52	15:11	Pile: F5. Pile F5 is misaligned, will be re-aligned on next workday.	-
Thursday, December 8, 2022	7:45	15:11	Vibratory installation of 3 piles. Impact installation of 3 piles. Impact count limit exceeded today.	Vibratory Installation	Steel 30-inch	8:17	8:45	Pile: F5, re-alignment.	-
				Impact Installation	Steel 30-inch	9:23	11:42	Piles: F5, F3, F2	2400
				Impact Installation	Steel 30-inch	12:50	12:56	Pile: F2. City allowed the driving crew to exceed the 2400 daily strike limit. Takes zones adjusted. No takes from this impact event.	106
				Vibratory Installation	Steel 30-inch	13:42	14:41	Piles: F7, F8	-
Friday, December 9, 2022	7:46	14:58	Vibratory installation of 3 piles. Impact installation of 3 piles. Coast Guard on site in the morning to investigate reports of project related sheen (non-found). Killer whales spotted just outside of the Exclusion Zone but never spotted entering the zone.	Vibratory Installation	Steel 30-inch	8:52	9:01	Pile: D6. Coast Guard on site during the installation of this pile.	-
				Impact Installation	Steel 30-inch	9:29	10:42	Pile: D6. Long break halfway through the installation of this pile due to a ribbon-cutting ceremony at an adjacent project.	920
				Vibratory Installation	Steel 30-inch	11:52	13:07	Piles: E9, E7. Killer whales spotted around the border of the Exclusion Zone before vibratory installation, all clear given before starting work.	-
				Impact Installation	Steel 30-inch	13:36	14:29	Piles: E9, E7	1480
Monday, December 12, 2022	7:49	12:33	Vibratory installation of 1 pile. Impact installation of 2 piles.	Impact Installation	Steel 30-inch	8:33	9:06	Pile: E9	1117
				Vibratory Installation	Steel 30-inch	10:20	10:35	Pile: D9	-
				Impact Installation	Steel 30-inch	11:25	12:03	Pile: F7	1283
Tuesday, December 13, 2022	7:49	9:18	Impact installation of 1 pile.	Impact Installation	Steel 30-inch	8:20	8:48	Pile: F8	987
Wednesday, December 14, 2022	7:50	14:06	Vibratory installation of 2 piles. Impact installation of 2 piles.	Vibratory Installation	Steel 30-inch	9:50	11:25	Piles: E1, E2	-
				Impact Installation	Steel 30-inch	12:43	13:36	Piles: E1, E2	1637
Thursday, December 15, 2022	7:51	12:06	Vibratory installation of 2 piles. Impact installation of 2 piles.	Vibratory Installation	Steel 30-inch	8:25	10:00	Piles: E3, E4	-
				Impact Installation	Steel 30-inch	10:43	11:36	Piles: E3, E4	1669
Friday, December 16, 2022	7:52	10:56	Impact installation of 2 piles.	Impact Installation	Steel 30-inch	9:32	10:26	Piles: D6, D8. Barge discharging turbid. The construction manager with Seattle Waterfront informed them to cease that activity.	1127
Monday, December 19, 2022	7:54	15:00	Vibratory installation of 3 piles. Impact installation of 3 piles. Low ambient temperatures resulted in mechanical issues with the vibratory hammer in the morning. Pile cut offs began today.	Vibratory Installation	Steel 30-inch	9:20	11:05	Piles: E6, E5	-
				Impact Installation	Steel 30-inch	11:21	12:18	Piles: E6, E5	2157
				Vibratory Installation	Steel 30-inch	13:38	13:52	Pile: D1	-
				Impact Installation	Steel 30-inch	14:15	14:30	Pile: D1	466
Tuesday, December 20, 2022	7:54	14:46	Vibratory installation of 3 piles. Impact installation of 3 piles. Work stopped for 1.5 hours during vibratory installs due to poor visibility (snow).	Vibratory Installation	Steel 30-inch	8:31	8:53	Pile: D2. Stop work called after this pile at 09:22. Poor visibility from snow	-
				Vibratory Installation	Steel 30-inch	11:15	12:41	Piles: D3, D4. All clear given at 11:00.	-
				Impact Installation	Steel 30-inch	13:03	14:16	Piles: D4, D3, D2	1912

Table A-1
Waterfront Park Pile Removal and Pile Driving Activity

Date	Daily Monitoring Start Time	Daily Monitoring Stop Time	Daily Notes	Pile Activity	Pile Type	Activity Start Time	Activity Stop Time	Time Period Notes (shutdowns/delays/WQ issues/pile names)	Strike Count During Time Period
Wednesday, December 21, 2022	7:55	11:54	Vibratory installation of 2 piles. Impact installation of 2 piles.	Vibratory Installation	Steel 30-inch	8:40	9:41	Piles: D5, D7	-
				Impact Installation	Steel 30-inch	10:34	11:24	Piles: D7, D5	1401
Thursday, December 22, 2022	7:55	14:47	Vibratory installation of 2 piles. Impact installation of 3 piles. Hydraulic fluid leak occurred during vibratory installation. Anchor QEA water quality on site during clean up.	Vibratory Installation	Steel 30-inch	8:55	9:07	Pile: E8. Hammer began leaking hydraulic fluid at 09:07. PPM deployed a curtain around the spill and worked on cleaning the spill up for next hour.	-
				Impact Installation	Steel 30-inch	10:14	10:40	Pile: E8	856
				Vibratory Installation	Steel 30-inch	13:03	13:14	Pile: D9	-
				Impact Installation	Steel 30-inch	13:33	13:51	Piles D4 and D9. Restrikes on D4 to achieve target depth.	771
Monday, January 30, 2023	7:38	10:36	1 pile partially removed and reinstalled to correct the alignment.	Vibratory Removal	Steel 30-inch	8:26	8:45	Pile: E1	-
				Impact Installation	Steel 30-inch	9:59	10:06	Pile: E1	149
Wednesday, February 1, 2023	7:36	15:12	Vibratory installation of 3 piles. Impact installation of 2 piles.	Vibratory Installation	Steel 30-inch	9:29	12:25	Piles: C3, C2, A2. Pile: C3 moved to C2 location due to refusal at original location.	-
				Impact Installation	Steel 30-inch	13:16	14:42	Piles C2 and A2	1016
Monday, February 6, 2023	7:29	13:57	Vibratory installation and impact installation of 3 piles.	Vibratory Installation	Steel 30-inch	8:50	11:09	Piles: B1, B2, C1	-
				Impact Installation	Steel 30-inch	11:26	13:27	Piles: B1, B2, C1	1384
Tuesday, February 7, 2023	7:28	15:52	Vibratory installation of 3 piles. Impact installation of 2 piles.	Vibratory Installation	Steel 30-inch	8:02	8:19	Pile: A1	-
				Impact Installation	Steel 30-inch	8:41	9:58	Pile: A1	444
				Vibratory Installation	Steel 30-inch	11:22	11:43	Pile: B3	-
				Impact Installation	Steel 30-inch	12:28	12:50	Pile: B3	662
				Vibratory Installation	Steel 30-inch	15:03	15:22	Pile: C8	-
Wednesday, February 8, 2023	7:26	14:50	Restrikes on 2 test piles. Vibratory installation and impact installation of 3 piles.	Impact Installation	Steel 30-inch	8:19	9:36	Piles: A2, C2, C8	988
				Vibratory Installation	Steel 30-inch	10:27	11:51	Piles C9 and C10	-
				Vibratory Installation	Steel 30-inch	13:02	13:12	Pile: C11	-
				Impact Installation	Steel 30-inch	13:30	14:20	Piles C11 and C10	1412
Thursday, February 9, 2023	7:24	15:10	Vibratory installation of 4 piles, Impact installation of 3 piles.	Impact Installation	Steel 30-inch	8:07	9:12	Piles C10 and C9	1841
				Vibratory Installation	Steel 30-inch	9:59	12:09	Piles C12, C13, C15	-
				Vibratory Installation	Steel 30-inch	13:48	14:03	Pile: C14	-
				Impact Installation	Steel 30-inch	14:22	14:40	Pile: C12	559
				Impact Installation	Steel 30-inch	8:00	9:31	Piles: C12, C13, C14, C15	2400
Friday, February 10, 2023	7:23	15:55	Impact installation of 4 piles. Vibratory installation of 1 pile after clearing obstruction.	Vibratory Installation	Steel 30-inch	13:43	15:35	Pile: C2. Used a jackhammer-like pile to clear a subsurface obstruction	-
				Impact Installation	Steel 30-inch	8:00	8:24	Pile: C3	810
Monday, February 13, 2023	7:18	12:06	Impact installation of 3 piles. 1 pile partially removed and reinstalled to correct the alignment.	Vibratory Installation	Steel 30-inch	8:41	9:04	Pile: B3	-
				Impact Installation	Steel 30-inch	9:22	9:42	Pile: B3	662
				Impact Installation	Steel 30-inch	11:13	11:26	Pile: C12	332
				Vibratory Installation	Steel 30-inch	9:48	10:04	Mooring Pile: 1	-
Tuesday, February 14, 2023	7:17	14:20	Vibratory installation of 2 mooring piles.	Vibratory Installation	Steel 30-inch	13:00	13:50	Mooring Pile: 2	-
Wednesday, February 15, 2023	7:15	11:03	Vibratory installation of 1 mooring pile.	Vibratory Installation	Steel 30-inch	10:22	10:33	Mooring Pile: 3	-

Notes:
PPM: Pacific Pile and Marine
PSO: Protected Species Observer

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Monday, October 3, 2022	Alki	Sunny	CSL	2	12:15	12:18	No	3450	240	Swimming	No Pile Activity	No Take		
Monday, October 3, 2022	Alki	Sunny	CSL	1	12:57	12:58	No	3300	240	Swimming	No Pile Activity	No Take		
Monday, October 3, 2022	Alki	Sunny	CSL	1	13:16	13:17	No	3500	253	Swimming	No Reaction Observed	No Take	Vibratory Removal Steel H-piles	Previously observed recorded as a take of the day.
Monday, October 3, 2022	Alki	Sunny	CSL	1	13:30	13:31	No	3500	253	Swimming	No Reaction Observed	No Take	Vibratory Removal Steel H-piles	Previously observed recorded as a take of the day.
Monday, October 3, 2022	Pier 58	Sunny	CSL	1	13:04	13:04	No	200	280	Swimming	No Reaction Observed	Level B	Vibratory Removal Steel H-piles	
Monday, October 3, 2022	Pier 58	Sunny	CSL	1	13:19	13:19	No	200	260	Swimming	No Reaction Observed	Level B	Vibratory Removal Steel H-piles	
Monday, October 3, 2022	Pier 58	Sunny	CSL	1	13:58	13:59	No	250	280	Swimming	No Reaction Observed	Level B	Vibratory Removal Steel H-piles	
Tuesday, October 4, 2022	Alki	Fog, Overcast, Light Wind	HS	1	8:09	13:30	No	5000	250	Swimming	No Pile Activity	No Take		Observed swimming and foraging in the area throughout the day.
Tuesday, October 4, 2022	Alki	Fog, Overcast, Light Wind	CSL	1	9:49	10:20	No	3700	260	Swimming	No Pile Activity	No Take		Observed moving North.
Tuesday, October 4, 2022	Alki	Fog, Overcast, Light Wind	CSL	4	11:05	13:15	No	5500	250	Intermittent	No Pile Activity	No Take		Observed swimming and foraging in the area before moving south.
Tuesday, October 4, 2022	Pier 58	Fog	CSL	1	7:20	7:20	No	150	250	Swimming	No Pile Activity	No Take		
Tuesday, October 4, 2022	Pier 58	Fog	CSL	1	8:20	8:20	No	160	265	Swimming	No Reaction Observed	Level B	Vibratory Removal Steel H-piles	
Tuesday, October 4, 2022	Pier 58	Fog	CSL	1	8:24	8:24	No	160	270	Swimming	No Reaction Observed	Level B	Vibratory Removal Steel H-piles	
Tuesday, October 4, 2022	Pier 58	Fog	CSL	2	8:29	8:29	No	170	250	Swimming	No Reaction Observed	Level B	Vibratory Removal Steel H-piles	
Tuesday, October 4, 2022	Pier 58	Fog	CSL	3	8:38	8:38	No	180	240	Swimming	No Reaction Observed	No Take	Vibratory Removal Steel H-piles	Previously observed recorded as a take of the day.
Tuesday, October 4, 2022	Pier 58	Fog	CSL	1	9:17	9:17	No	150	265	Swimming	No Pile Activity	Level B		
Tuesday, October 4, 2022	Pier 58	Fog	CSL	3	9:43	9:47	No	180	260	Foraging	No Pile Activity	No Take		
Tuesday, October 4, 2022	Pier 58	Fog	CSL	1	12:38	12:38	No	150	280	Foraging	No Pile Activity	Level B		
Tuesday, October 4, 2022	Pier 58	Fog	CSL	1	13:20	13:20	No	105	300	Foraging	No Pile Activity	Level B		
Tuesday, October 4, 2022	Pier 58	Fog	CSL	1	13:27	13:27	No	200	280	Swimming	No Pile Activity	No Take		Previously observed recorded as a take of the day.
Wednesday, October 5, 2022	Alki	Fog, Overcast	HS	1	7:38	8:11	No	4000	255	Foraging	No Reaction Observed	No Take	Vibratory Removal Steel H-piles	
Wednesday, October 5, 2022	Alki	Fog, Overcast	HS	1	8:04	8:21	No	3500	250	Swimming	No Pile Activity	No Take		
Wednesday, October 12, 2022	Alki	Sunny, Light Wind	HS	1	10:38	10:39	No	7355	245	Swimming	No Pile Activity	No Take		
Wednesday, October 12, 2022	Pier 63	Sunny	CSL	1	8:32	8:35	No	400	180	Swimming	No Pile Activity	No Take		
Wednesday, October 12, 2022	Pier 63	Sunny	CSL	1	8:56	8:58	No	100	300	Swimming	No Pile Activity	No Take		
Wednesday, October 12, 2022	Pier 63	Sunny	HS	1	9:45	9:57	No	100	300	Intermittent	No Pile Activity	No Take		
Wednesday, October 12, 2022	Pier 63	Sunny	CSL	1	10:22	10:23	No	100	300	Swimming	No Pile Activity	No Take		

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Wednesday, October 12, 2022	Ferry	Sunny, Light Wind	CSL	1	10:20	10:40	No	200	195	Swimming	No Pile Activity	No Take		Previously observed recorded as a take of the day.
Wednesday, October 12, 2022	Magnolia	Sunny, Light Wind	HS	2	7:35	8:42	No	4500	304	Swimming	No Pile Activity	No Take		
Wednesday, October 12, 2022	Magnolia	Sunny, Light Wind	HS	1	7:38	14:05	No	5000	303	Intermittent	No Pile Activity	No Take		Intermittently observed for much of the monitoring day.
Wednesday, October 12, 2022	Magnolia	Sunny, Light Wind	HS	1	11:34	12:15	No	4500	303	Swimming	No Pile Activity	No Take		Previously observed recorded as a take of the day.
Monday, October 31, 2022	Alki	Light Wind, Whitecaps, Other	HS	4	7:52	9:37	No	5000	240	Intermittent	No Pile Activity	No Take		Group observed before the official start of the monitoring period. The group dispersed before swimming away during the monitoring period.
Monday, October 31, 2022	Alki	Light Wind, Whitecaps, Other	CSL	1	8:46	9:04	No	6000	245	Foraging	No Pile Activity	No Take		Observed foraging in the area before moving south.
Monday, October 31, 2022	Alki	Overcast, Light Rain	HP	1	9:05	9:15	No	3000	245	Swimming	No Pile Activity	No Take		
Monday, October 31, 2022	Alki	Overcast, Light Rain	CSL	1	9:30	9:50	No	2800	240	Swimming	No Pile Activity	No Take		
Monday, October 31, 2022	Alki	Light Wind, Whitecaps, Other	CSL	1	11:06	11:31	No	4500	240	Foraging	No Pile Activity	No Take		
Monday, October 31, 2022	Alki	Light Wind, Whitecaps, Other	HS	1	13:41	14:09	No	4500	240	Resting	No Pile Activity	No Take		Observed resting on a log for a short time before swimming away.
Tuesday, November 1, 2022	Alki	Sunny	CSL	1	10:50	11:30	No	3500	250	Foraging	No Pile Activity	No Take		
Tuesday, November 1, 2022	Alki	Sunny	HS	1	11:00	11:30	No	3500	247	Resting	No Pile Activity	No Take		
Tuesday, November 1, 2022	Alki	Sunny	CSL	1	12:10	12:15	No	3500	247	Foraging	No Pile Activity	No Take		
Tuesday, November 1, 2022	Magnolia	Sunny	CSL	1	11:48	11:48	No	4750	302	Swimming	No Pile Activity	No Take		Observed swimming along the shoreline.
Tuesday, November 1, 2022	Magnolia	Sunny	CSL	1	11:48	11:48	No	4750	302	Swimming	No Pile Activity	No Take		Observed swimming along the shoreline.
Tuesday, November 1, 2022	Magnolia	Sunny	CSL	1	12:20	12:25	No	4750	302	Swimming	No Pile Activity	No Take		Observed swimming along the shoreline.
Tuesday, November 1, 2022	Magnolia	Sunny	CSL	1	12:20	12:25	No	4750	302	Swimming	No Pile Activity	No Take		Observed swimming along the shoreline.
Tuesday, November 1, 2022	Magnolia	Sunny	HS	1	12:51	12:55	No	4600	302	Intermittent	No Pile Activity	No Take		
Tuesday, November 1, 2022	Magnolia	Sunny	HS	1	12:51	12:55	No	4600	302	Intermittent	No Pile Activity	No Take		
Tuesday, November 1, 2022	Magnolia	Sunny	HS	1	13:43	13:44	No	4800	303	Swimming	No Pile Activity	No Take		Observed swimming along the shoreline.
Tuesday, November 1, 2022	Magnolia	Sunny	HS	1	13:43	13:44	No	4800	303	Swimming	No Pile Activity	No Take		Observed swimming along the shoreline.
Wednesday, November 2, 2022	Alki	Overcast	HS	1	8:00	8:00	No	3200	240	Resting	No Pile Activity	No Take		The seal appeared to be interested in a fisherman in the area.
Wednesday, November 2, 2022	Alki	Overcast	HS	1	8:18	8:25	No	3200	240	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	8:20	8:26	No	3000	240	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	8:20	8:26	No	3000	240	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	8:37	8:39	No	3250	242	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	8:48	8:48	No	3250	242	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	HS	1	8:49	8:49	No	3250	240	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	8:52	8:57	No	3250	241	Foraging	No Pile Activity	No Take		

Table A-2
Waterfront Park Daily Observations

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Wednesday, November 2, 2022	Alki	Overcast	HS	1	8:55	8:58	No	3200	241	Swimming	No Pile Activity	No Take		Appears to be a juvenile.
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	8:56	8:56	No	3000	240	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	2	9:01	9:03	No	3250	243	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	SSL	1	9:47	9:47	No	3250	243	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	9:48	9:50	No	3250	242	Foraging	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	10:08	10:09	No	3200	243	Swimming	No Pile Activity	Level B		
Wednesday, November 2, 2022	Alki	Overcast	HS	1	10:31	10:35	No	3200	242	Resting	No Pile Activity	Level B		
Wednesday, November 2, 2022	Alki	Overcast	HS	1	10:45	10:47	No	3000	241	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed recorded as a take of the day.
Wednesday, November 2, 2022	Alki	Overcast	HS	1	10:50	10:52	No	3000	241	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed recorded as a take of the day.
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	11:08	11:08	No	3250	242	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, November 2, 2022	Alki	Overcast	HS	1	11:09	11:16	No	3250	241	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, November 2, 2022	Alki	Overcast	HS	1	11:26	11:26	No	3100	241	Swimming	No Pile Activity	Level B		
Wednesday, November 2, 2022	Alki	Overcast	HS	1	12:43	12:43	No	3250	241	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	12:48	12:50	No	3200	241	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	12:48	12:50	No	3200	241	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	13:25	13:25	No	3200	244	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	13:25	13:25	No	3200	244	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Alki	Overcast	CSL	1	13:28	13:31	No	3250	242	Foraging	No Pile Activity	No Take		
Wednesday, November 2, 2022	Pier 58	Overcast	CSL	1	11:18	11:19	No	120	270	Swimming	No Pile Activity	Level B		
Wednesday, November 2, 2022	Pier 63	Overcast, Light Rain, Light Wind	CSL	2	11:30	11:45	No	120	235	Swimming	No Pile Activity	Level B		One individual in the group observed foraging.
Wednesday, November 2, 2022	Ferry	Overcast, Light Wind	CSL	1	9:20	9:22	No	6000	270	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Ferry	Overcast, Light Wind	HS	1	10:35	10:40	No	9600	270	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	
Wednesday, November 2, 2022	Ferry	Overcast, Light Wind	HS	1	12:30	12:31	No	9600	270	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Ferry	Overcast, Light Wind	HS	1	12:50	12:50	No	1200	270	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Ferry	Overcast, Light Wind	HS	2	14:12	14:14	No	10600	270	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Ferry	Sunny	HS	1	14:24	14:25	No	6500	265	Swimming	No Pile Activity	Level B		
Wednesday, November 2, 2022	Magnolia	Moderate Wind, Overcast, Whitecaps	HS	1	8:00	8:00	No	5000	303	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Magnolia	Moderate Wind, Overcast, Whitecaps	HS	1	8:09	8:10	No	5000	303	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Magnolia	Moderate Wind, Overcast, Whitecaps	HS	1	8:12	8:12	No	5000	303	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Magnolia	Moderate Wind, Overcast, Whitecaps	CSL	1	8:30	8:31	No	5000	303	Foraging	No Pile Activity	No Take		Observed barking at a group of harassing seagulls.
Wednesday, November 2, 2022	Magnolia	Moderate Wind, Overcast, Whitecaps	HS	1	8:56	8:56	No	5000	303	Swimming	No Pile Activity	No Take		

Table A-2
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Wednesday, November 2, 2022	Magnolia	Overcast, Moderate Wind, Whitecaps, Light Rain, Heavy Rain, Light Wind	HS	1	8:58	8:59	No	5000	303	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Magnolia	Overcast, Moderate Wind, Whitecaps, Light Rain, Heavy Rain, Light Wind	HS	1	9:43	9:44	No	5000	300	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Magnolia	Overcast, Moderate Wind, Whitecaps, Light Rain, Heavy Rain, Light Wind	HS	1	10:27	10:29	No	5000	300	Swimming	No Pile Activity	Level B		
Wednesday, November 2, 2022	Magnolia	Overcast, Moderate Wind, Whitecaps, Light Rain, Heavy Rain, Light Wind	HS	1	10:31	10:31	No	5000	300	Swimming	No Pile Activity	No Take		Previously observed recorded as a take of the day.
Wednesday, November 2, 2022	Magnolia	Overcast, Moderate Wind, Whitecaps, Light Rain, Heavy Rain, Light Wind	HS	1	10:38	10:39	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, November 2, 2022	Magnolia	Heavy Rain, Overcast	HS	1	11:01	11:02	No	5000	300	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed recorded as a take of the day.
Wednesday, November 2, 2022	Magnolia	Heavy Rain, Overcast	HS	1	11:09	11:09	No	5000	300	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed recorded as a take of the day.
Wednesday, November 2, 2022	Magnolia	Heavy Rain, Overcast	HS	1	11:44	11:45	No	5000	300	Swimming	No Pile Activity	No Take		
Wednesday, November 2, 2022	Magnolia	Heavy Rain, Overcast	HS	1	13:00	13:00	No	5000	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Magnolia	Heavy Rain, Overcast	HS	1	13:04	13:05	No	5000	300	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Magnolia	Overcast	HS	1	13:11	13:12	No	5000	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Magnolia	Overcast	HS	1	13:22	13:23	No	5000	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 2, 2022	Magnolia	Overcast	HS	1	14:02	14:03	No	5000	300	Swimming	No Pile Activity	Level B		
Wednesday, November 2, 2022	Magnolia	Overcast	HS	1	14:10	14:10	No	5000	300	Swimming	No Pile Activity	No Take		Previously observed recorded as a take of the day.
Wednesday, November 2, 2022	Magnolia	Overcast	HS	1	14:40	14:40	No	5000	300	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed recorded as a take of the day.
Thursday, November 3, 2022	Alki	Overcast	HS	1	11:20	11:43	No	3250	242	Intermittent	No Pile Activity	No Take		Observed swimming back and forth along the shoreline while foraging.
Thursday, November 3, 2022	Alki	Overcast	HS	1	12:16	12:18	No	3200	250	Resting	No Pile Activity	No Take		
Thursday, November 3, 2022	Alki	Overcast	HS	1	12:46	12:51	No	3100	242	Resting	No Pile Activity	Level B		Observed resting in the water before swimming to a new location.
Thursday, November 3, 2022	Alki	Overcast	HS	1	13:02	13:06	No	3250	243	Resting	No Pile Activity	Level B		
Thursday, November 3, 2022	Alki	Overcast	HS	1	13:22	13:37	No	3100	241	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Appears to be an adult.
Thursday, November 3, 2022	Alki	Overcast, Light Rain	CSL	1	13:30	13:32	No	3300	255	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Appears to be a female.

Table A-2
Waterfront Park Daily Observations

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Thursday, November 3, 2022	Alki	Overcast, Light Rain	CSL	1	13:41	13:41	No	3250	253	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed recorded as a take of the day.
Thursday, November 3, 2022	Alki	Overcast, Light Rain	CSL	1	13:44	13:47	No	3250	241	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, November 3, 2022	Alki	Overcast, Light Rain	CSL	1	13:50	14:13	No	3250	244	Foraging	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Observed foraging for a long time in same general area.
Thursday, November 3, 2022	Alki	Overcast, Light Rain	CSL	1	13:59	14:00	No	3500	250	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, November 3, 2022	Alki	Overcast, Light Rain	HS	1	15:28	15:29	No	3250	243	Resting	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, November 3, 2022	Alki	Overcast, Light Rain	HS	1	15:51	15:51	No	3250	241	Swimming	No Pile Activity	Level B		
Thursday, November 3, 2022	Pier 63	Overcast, Light Wind	CSL	1	10:26	10:28	No	1000	285	Swimming	No Pile Activity	No Take		Observed moving south.
Thursday, November 3, 2022	Pier 58	Overcast, Light Rain, Moderate Wind, Light Wind, Whitecaps	CSL	1	11:32	11:34	No	150	300	Swimming	No Pile Activity	No Take		
Thursday, November 3, 2022	Ferry	Overcast	CSL	1	11:34	11:34	No	2200	265	Swimming	No Pile Activity	No Take		
Thursday, November 3, 2022	Magnolia	Overcast	HS	1	8:35	8:36	No	5000	303	Swimming	No Pile Activity	No Take		
Thursday, November 3, 2022	Magnolia	Overcast	HS	1	8:37	8:38	No	5000	303	Swimming	No Pile Activity	No Take		
Thursday, November 3, 2022	Magnolia	Overcast	HS	4	8:40	8:41	No	5000	303	Foraging	No Pile Activity	No Take		
Thursday, November 3, 2022	Magnolia	Overcast	HS	1	8:46	8:46	No	5000	303	Swimming	No Pile Activity	No Take		
Thursday, November 3, 2022	Magnolia	Overcast	HS	1	10:39	10:40	No	5100	300	Swimming	No Pile Activity	No Take		
Thursday, November 3, 2022	Magnolia	Overcast, Light Wind, Moderate Wind, Whitecaps, Light Rain, Heavy Rain	HS	2	10:41	10:43	No	5000	300	Swimming	No Pile Activity	No Take		
Thursday, November 3, 2022	Magnolia	Overcast, Light Wind, Moderate Wind, Whitecaps, Light Rain, Heavy Rain	HS	1	13:01	13:02	No	5000	300	Swimming	No Pile Activity	Level B		
Thursday, November 3, 2022	Magnolia	Overcast, Light Wind, Moderate Wind, Whitecaps, Light Rain, Heavy Rain	HS	1	13:10	13:10	No	5000	300	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed successfully catching a fish.
Thursday, November 3, 2022	Magnolia	Overcast, Light Wind, Moderate Wind, Whitecaps, Light Rain, Heavy Rain	HS	1	13:13	13:13	No	5000	300	Foraging	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed and recorded as a take of the day.
Friday, November 4, 2022	Alki	Overcast, Moderate Wind	HS	1	8:07	8:08	No	3250	243	-	No Pile Activity	No Take		
Friday, November 4, 2022	Alki	Overcast, Moderate Wind	HS	1	8:28	8:46	No	3250	245	Swimming	No Pile Activity	No Take		Swimming around, occasionally popping head up.
Friday, November 4, 2022	Alki	Overcast, Moderate Wind	HS	1	9:03	9:03	No	3350	247	Resting	No Pile Activity	No Take		Pops head up intermittently.
Friday, November 4, 2022	Alki	Overcast, Moderate Wind	HS	1	9:13	9:19	No	3350	247	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, November 4, 2022	Alki	Overcast, Moderate Wind	CSL	1	9:19	9:22	No	325	242	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, November 4, 2022	Alki	Moderate Wind, Overcast, Light Rain	HS	1	9:33	9:43	No	3350	247	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	Pops head up intermittently

Table A-2
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Friday, November 4, 2022	Alki	Moderate Wind, Overcast, Light Rain	HS	1	9:51	10:02	No	3300	247	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, November 4, 2022	Alki	Moderate Wind, Overcast, Light Rain	HS	1	11:10	11:10	No	3100	242	Resting	No Pile Activity	No Take		
Friday, November 4, 2022	Alki	Moderate Wind, Overcast, Light Rain	CSL	2	12:00	12:50	No	3000	230	Resting	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed resting on a mooring buoy.
Friday, November 4, 2022	Alki	Moderate Wind, Overcast, Light Rain	HS	1	12:43	12:45	No	3250	240	Swimming	No Pile Activity	Level B		Splashing around briefly, may have been foraging, but unsure.
Friday, November 4, 2022	Alki	Light Wind, Light Rain, Overcast	CSL	1	14:46	14:51	No	3250	242	Foraging	No Pile Activity	No Take		Possibly observed earlier in the day resting on a buoy, now swimming.
Friday, November 4, 2022	Magnolia	Heavy Wind, Whitecaps, Overcast	HS	1	9:09	9:09	No	5000	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, November 4, 2022	Magnolia	Heavy Wind, Whitecaps, Overcast	HS	1	10:03	10:05	No	5000	300	Swimming	No Pile Activity	No Take		
Friday, November 4, 2022	Magnolia	Heavy Wind, Whitecaps, Overcast	HS	1	10:14	10:14	No	5000	300	Swimming	No Pile Activity	No Take		
Friday, November 4, 2022	Magnolia	Heavy Wind, Whitecaps, Overcast	HS	1	12:10	12:11	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Alki	Overcast, Light Rain	KW	6	8:02	8:57	No	10000	260	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Alki	Overcast, Light Rain	HS	1	9:18	9:20	No	3750	255	Foraging	No Pile Activity	Level B		
Monday, November 7, 2022	Alki	Overcast, Light Rain	HS	1	9:27	9:27	No	3500	255	Foraging	No Pile Activity	Level B		
Monday, November 7, 2022	Alki	Overcast, Light Rain	HS	1	10:55	11:05	No	3500	250	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Alki	Overcast	CSL	1	11:07	11:11	No	2500	245	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Alki	Overcast	HS	1	11:48	12:05	No	1250	255	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Alki	Overcast	HS	1	12:07	12:30	No	4000	255	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Alki	Overcast, Light Rain	HS	1	12:55	13:31	No	3250	250	Intermittent	No Pile Activity	No Take		
Monday, November 7, 2022	Alki	Overcast, Light Rain	HS	2	14:48	14:49	No	3500	250	Foraging	No Pile Activity	No Take		Previously observed and recorded as a take of the day.
Monday, November 7, 2022	Pier 58	Overcast, Light Wind	CSL	1	10:12	10:12	No	100	240	Swimming	No Pile Activity	No Take		
Monday, November 7, 2022	Pier 58	Overcast, Light Wind, Light Rain	HS	1	11:06	11:06	No	50	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Pier 63	Overcast, Light Wind, Fog	CSL	1	13:13	13:16	No	150	260	Swimming	No Pile Activity	No Take		
Monday, November 7, 2022	Pier 58	Overcast, Light Wind	CSL	1	13:58	13:58	No	100	240	Swimming	No Pile Activity	No Take		
Monday, November 7, 2022	Pier 63	Overcast, Light Wind, Fog	CSL	2	14:12	14:17	No	100	270	Swimming	No Pile Activity	No Take		
Monday, November 7, 2022	Pier 58	Overcast, Light Rain, Light Wind	CSL	1	15:32	15:32	No	100	300	Swimming	No Pile Activity	Level B		
Monday, November 7, 2022	Ferry	Overcast, Fog, Light Rain	KW	7	7:25	8:20	No	10000	270	Swimming	No Pile Activity	No Take		

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Monday, November 7, 2022	Ferry	Overcast, Fog, Light Rain	KW	2	9:00	9:08	No	13000	240	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Ferry	Overcast, Fog, Light Rain	KW	10	9:55	10:13	Yes	7000	270	Swimming	No Pile Activity	No Take		
Monday, November 7, 2022	Ferry	Overcast, Fog, Light Rain	HS	1	11:55	11:56	No	5000	270	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain, Fog	HS	1	7:20	9:16	No	5000	303	Foraging	No Pile Activity	Level B		Stayed in the area for a while, observed foraging around flock of seabirds.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain, Fog	HS	1	7:20	9:16	No	5000	303	Foraging	No Pile Activity	Level B		Stayed in the area for a while, observed foraging around flock of seabirds.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain, Fog	KW	4	7:28	8:42	No	12000	280	Foraging	No Pile Activity	No Take		Pod seen near Bainbridge, then moved south individually.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain, Fog	HS	1	8:24	8:54	No	5250	303	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Swimming and foraging with other observed harbor seal.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain, Fog	HS	1	9:33	9:37	No	6000	302	Swimming	No Pile Activity	Level B		Observed swimming west out of the bay.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain, Fog	KW	2	10:21	10:38	No	13000	310	Swimming	No Pile Activity	No Take		Swam north till out of sight.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain, Fog	KW	2	10:21	10:38	No	14000	310	Swimming	No Pile Activity	No Take		Swam north till out of sight.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain	HS	2	11:09	12:15	No	5100	303	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Two individuals foraging around the area in front of Magnolia.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain	CSL	1	12:44	12:54	No	4500	300	Swimming	No Pile Activity	No Take		Observed swimming into Elliot Bay.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain	CSL	1	12:57	13:02	No	5500	290	Swimming	No Pile Activity	No Take		Observed swimming southwest.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain	CSL	1	12:57	13:02	No	5500	290	Swimming	No Pile Activity	No Take		Observed swimming southwest.
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain	HS	1	13:09	13:53	No	5000	303	Swimming	No Pile Activity	No Take		
Monday, November 7, 2022	Magnolia	Light Wind, Light Rain	HS	2	13:48	13:53	No	4500	300	Swimming	No Pile Activity	No Take		Observed meeting group before swimming towards the marina together.
Monday, November 7, 2022	Magnolia	Light Rain, Fog, Light Wind	CSL	1	15:08	15:15	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed swimming northwest out of the bay.
Monday, November 7, 2022	Magnolia	Light Rain, Fog, Light Wind	HS	1	15:39	15:50	No	5100	303	Swimming	No Pile Activity	Level B		Observed swimming east.
Monday, November 7, 2022	Magnolia	Light Rain, Fog, Light Wind	HS	1	15:46	15:50	No	5000	300	Swimming	No Pile Activity	Level B		
Tuesday, November 8, 2022	Alki	Heavy Wind, Whitecaps, Sunny	CSL	1	7:23	7:23	No	3100	240	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Alki	Heavy Wind, Whitecaps, Sunny	HS	1	7:45	7:45	No	3050	241	Resting	No Pile Activity	No Take		

Table A-2
Waterfront Park Daily Observations

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Tuesday, November 8, 2022	Alki	Sunny, Heavy Wind, Whitecaps	HS	1	8:00	15:56	No	3250	233	Resting	No Pile Activity	No Take		Baby harbor seal has been resting on the boat ramp since this morning. A veterinarian came to check him out and said that he looked fine. Volunteers reported the seal has been on the beach for at least a full day now. Recently weaned pup.
Tuesday, November 8, 2022	Alki	Heavy Wind, Whitecaps, Sunny	CSL	1	8:25	8:29	No	3100	240	Swimming	No Pile Activity	No Take		Observed swimming west.
Tuesday, November 8, 2022	Alki	Heavy Wind, Whitecaps, Sunny	CSL	1	8:38	8:39	No	3500	250	Resting	No Pile Activity	No Take		Previously observed swimming west earlier in the day.
Tuesday, November 8, 2022	Alki	Heavy Wind, Whitecaps, Sunny	CSL	1	9:08	9:20	No	3100	240	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Alki	Sunny, Heavy Wind, Whitecaps	HS	1	9:28	9:43	No	3150	241	Resting	No Pile Activity	No Take		Swimming around and occasionally popping head up.
Tuesday, November 8, 2022	Alki	Sunny, Heavy Wind, Whitecaps	HS	1	11:52	11:52	No	3500	248	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Alki	Sunny, Heavy Wind, Whitecaps	CSL	1	14:09	14:09	No	3350	246	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed swimming west.
Tuesday, November 8, 2022	Pier 63	Overcast	CSL	1	9:15	9:17	No	80	240	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Ferry	Sunny, Moderate Wind	KW	2	8:10	8:16	No	9000	240	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Ferry	Sunny, Moderate Wind	HS	1	8:37	8:45	No	1280	308	Resting	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind	HS	3	7:18	7:19	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind	HS	1	7:38	7:38	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind	HS	1	7:57	7:58	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind	HS	1	8:00	8:02	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind	HS	1	8:11	8:11	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind, Sunny	HS	2	8:30	8:31	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind, Sunny	HS	1	8:43	8:44	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind, Sunny	HS	1	10:11	10:12	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind, Sunny	HS	1	10:15	10:15	No	5000	300	Swimming	No Pile Activity	No Take		Previously observed and recorded as a take of the day.
Tuesday, November 8, 2022	Magnolia	Overcast, Light Wind, Sunny	KW	7	10:45	10:46	Yes	7300	300	Swimming	No Pile Activity	No Take		Difficult to accurately count the number of individuals; very hard to see with the intense whitecaps and wind.
Tuesday, November 8, 2022	Magnolia	Sunny, Overcast, Whitecaps, Moderate Wind	KW	8	10:54	10:55	Yes	7300	300	Swimming	No Pile Activity	No Take		Difficult to accurately count the number of individuals; very hard to see with the intense whitecaps and wind. The group did not enter the exclusion zone until after pile work had ended.

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Tuesday, November 8, 2022	Magnolia	Sunny, Overcast, Whitecaps, Moderate Wind	HS	1	11:51	11:52	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Sunny, Overcast, Whitecaps, Moderate Wind	HS	1	12:23	12:24	No	5000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 8, 2022	Magnolia	Sunny, Overcast, Whitecaps, Moderate Wind	HS	1	15:01	15:01	No	5000	300	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Alki	Light Wind, Sunny	HS	1	7:16	7:31	No	3750	250	Intermittent	No Pile Activity	No Take		
Wednesday, November 9, 2022	Alki	Sunny	HS	1	8:01	8:08	No	3500	250	Resting	No Pile Activity	No Take		
Wednesday, November 9, 2022	Alki	Sunny	CSL	2	8:14	8:15	No	3250	255	Swimming	No Pile Activity	No Take		Observed swimming south.
Wednesday, November 9, 2022	Alki	Sunny	CSL	1	8:25	8:57	No	3750	250	Intermittent	Reaction Observed	Level B	Vibratory Install Steel 30-inch	Was resting and slowly floating east until hammer turned on, then began swimming east.
Wednesday, November 9, 2022	Alki	Sunny	KW	10	9:35	10:28	No	8500	235	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Observed swimming east out of the bay.
Wednesday, November 9, 2022	Alki	Sunny	HS	1	10:29	10:31	No	5000	250	Foraging	No Pile Activity	No Take		
Wednesday, November 9, 2022	Alki	Sunny	HS	1	10:49	11:00	No	3750	250	Foraging	No Pile Activity	No Take		
Wednesday, November 9, 2022	Alki	Sunny	HS	1	11:54	12:14	No	3750	250	Resting	No Pile Activity	No Take		
Wednesday, November 9, 2022	Alki	Sunny	CSL	1	13:25	13:52	No	4000	250	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, November 9, 2022	Alki	Sunny	HS	1	14:21	14:22	No	3100	245	Resting	No Pile Activity	Level B		
Wednesday, November 9, 2022	Alki	Sunny	HS	1	15:19	15:42	No	3750	250	Resting	No Pile Activity	Level B		
Wednesday, November 9, 2022	Alki	Sunny	KW	5	15:27	15:45	No	9000	245	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Pier 63	Sunny, Light Wind	CSL	1	7:16	7:23	No	75	210	Swimming	No Pile Activity	No Take		Observed swimming south out of vision.
Wednesday, November 9, 2022	Pier 58	Sunny	CSL	1	7:22	7:23	No	120	270	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Pier 63	Sunny, Light Wind	CSL	1	8:14	8:16	No	80	180	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Pier 63	Sunny, Light Wind	HS	1	8:34	8:36	No	100	255	Swimming	No Pile Activity	Level B		
Wednesday, November 9, 2022	Pier 63	Sunny, Light Wind	CSL	1	9:43	9:44	No	200	300	Swimming	No Pile Activity	Level B		Observed swimming south.
Wednesday, November 9, 2022	Pier 58	Sunny	HS	1	10:26	10:28	No	100	180	Intermittent	No Pile Activity	No Take		
Wednesday, November 9, 2022	Ferry	Sunny	CSL	1	8:54	8:54	No	500	180	Swimming	No Pile Activity	Level B		
Wednesday, November 9, 2022	Ferry	Sunny	KW	20	9:41	10:08	Yes	4000	285	Swimming	No Pile Activity	No Take		Killer whales heading southbound. Multiple individuals (20+). Mainly stayed outside of Exclusion Zone but spotted within the zone after work ended. Very spread out.
Wednesday, November 9, 2022	Magnolia	Sunny	HS	1	7:26	7:28	No	5000	303	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Magnolia	Sunny	HS	1	7:45	7:50	No	5000	303	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Magnolia	Sunny	HS	1	9:05	9:05	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, November 9, 2022	Magnolia	Sunny	KW	4	9:40	9:44	Yes	7500	255	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Magnolia	Sunny	HS	2	9:43	9:45	No	5000	303	Swimming	No Pile Activity	Level B		
Wednesday, November 9, 2022	Magnolia	Sunny	HS	1	12:07	12:08	No	5000	303	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Magnolia	Sunny	HS	1	12:23	12:24	No	5000	303	Swimming	No Pile Activity	No Take		
Wednesday, November 9, 2022	Magnolia	Sunny	HS	1	14:46	14:48	No	5000	300	Swimming	No Pile Activity	Level B		
Wednesday, November 9, 2022	Magnolia	Sunny	HS	1	15:26	15:26	No	5000	303	Swimming	No Pile Activity	Level B		
Thursday, November 10, 2022	Alki	Overcast	CSL	2	7:12	7:47	No	3500	250	Resting	No Pile Activity	No Take		

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Thursday, November 10, 2022	Alki	Overcast	KW	4	7:26	7:35	No	7000	240	Swimming	No Pile Activity	No Take		
Thursday, November 10, 2022	Alki	Overcast	HS	1	8:10	8:12	No	3100	245	Resting	No Pile Activity	No Take		
Thursday, November 10, 2022	Alki	Overcast	CSL	2	8:16	9:34	No	3500	250	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	Previously observed and recorded as a take of the day.
Thursday, November 10, 2022	Alki	Overcast	CSL	1	8:24	10:10	No	3900	247	Intermittent	No Pile Activity	Level B		
Thursday, November 10, 2022	Alki	Overcast	HS	1	8:38	8:40	No	3500	250	Swimming	No Pile Activity	No Take		
Thursday, November 10, 2022	Alki	Overcast	HS	1	9:20	9:24	No	3600	248	Swimming	No Pile Activity	No Take		
Thursday, November 10, 2022	Alki	Overcast, Sunny	CSL	1	9:25	9:31	No	3500	255	Swimming	No Pile Activity	No Take		
Thursday, November 10, 2022	Alki	Overcast	KW	3	9:51	10:32	No	9000	250	Swimming	No Pile Activity	No Take		
Thursday, November 10, 2022	Alki	Overcast	CSL	1	10:44	10:52	No	4200	245	Resting	No Pile Activity	No Take		
Thursday, November 10, 2022	Alki	Overcast	CSL	2	10:52	10:52	No	3500	250	Resting	No Pile Activity	Level B		Previously observed and recorded as a take of the day.
Thursday, November 10, 2022	Alki	Overcast	CSL	2	12:10	12:39	No	3750	250	Swimming	No Pile Activity	No Take		Observed swimming west along shore to where another California Sea Lion was observed. Previously observed and recorded as a take of the day.
Thursday, November 10, 2022	Alki	Overcast	CSL	1	12:29	15:25	No	4000	247	Intermittent	No Pile Activity	No Take		Observed mostly rested in the area with some foraging. Previously observed and recorded as a take of the day.
Thursday, November 10, 2022	Alki	Overcast	HS	1	12:29	12:39	No	4000	247	Resting	No Pile Activity	No Take		
Thursday, November 10, 2022	Alki	Overcast	CSL	1	12:54	12:59	No	3100	255	Swimming	No Pile Activity	Level B		
Thursday, November 10, 2022	Alki	Overcast	CSL	2	14:21	14:21	No	3750	250	Swimming	No Pile Activity	No Take		Observed swimming northeast into Elliott Bay. Previously observed and recorded as a take of the day.
Thursday, November 10, 2022	Alki	Overcast	HS	1	14:21	14:40	No	3100	245	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Observed moving from resting point to the boat launch ramp. Previously observed and recorded as a take of the day.
Thursday, November 10, 2022	Pier 58	Overcast	HS	1	13:45	13:46	No	100	290	Swimming	No Pile Activity	Level B		
Thursday, November 10, 2022	Pier 58	Overcast	HS	1	15:16	15:18	No	80	275	Swimming	No Pile Activity	Level B		
Thursday, November 10, 2022	Ferry	Overcast, Sunny	KW	2	7:18	7:24	Yes	7000	255	Swimming	No Pile Activity	No Take		Killer whale network reported a large pod traveling south, but I only saw a few of them.
Thursday, November 10, 2022	Ferry	Overcast, Sunny	KW	8	9:50	10:05	No	9000	250	Foraging	No Pile Activity	No Take		Observed a lot of big splashes, so may have been foraging or playing. Heading north.
Thursday, November 10, 2022	Ferry	Overcast, Sunny	KW	5	10:53	11:07	No	8000	312	Swimming	No Pile Activity	No Take		Same killer whales from earlier coming north. Spotted over by discovery. I saw about 5, but there's probably more spread out. I think this is the trailing group, so the rest might be further north.

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Thursday, November 10, 2022	Ferry	Overcast, Sunny	HS	1	13:50	13:50	No	2000	255	Swimming	No Pile Activity	Level B		
Thursday, November 10, 2022	Magnolia	Sunny	HS	1	7:18	7:19	No	5000	303	Swimming	No Pile Activity	No Take		
Thursday, November 10, 2022	Magnolia	Sunny	HS	1	8:03	8:03	No	5000	303	Swimming	No Pile Activity	No Take		
Thursday, November 10, 2022	Magnolia	Sunny	HS	1	9:02	9:02	No	5000	303	Swimming	No Pile Activity	No Take		
Thursday, November 10, 2022	Magnolia	Sunny	HS	1	10:07	10:07	No	5000	303	Swimming	No Pile Activity	Level B		
Thursday, November 10, 2022	Magnolia	Sunny	HS	2	11:24	11:26	No	5000	303	Swimming	No Pile Activity	Level B		
Thursday, November 10, 2022	Magnolia	Sunny	HS	5	11:25	11:27	No	5000	303	Swimming	No Pile Activity	Level B		
Thursday, November 10, 2022	Magnolia	Sunny	HS	1	14:38	14:38	No	5000	303	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Friday, November 11, 2022	Alki	Light Wind, Overcast	CSL	1	7:47	7:51	No	3250	255	Swimming	No Pile Activity	No Take		
Friday, November 11, 2022	Alki	Light Wind, Overcast	CSL	2	8:17	8:17	No	3500	250	Swimming	No Pile Activity	No Take		Spotted swimming west.
Friday, November 11, 2022	Alki	Light Wind, Overcast	CSL	1	8:17	8:29	No	3100	250	Foraging	No Pile Activity	No Take		
Friday, November 11, 2022	Alki	Overcast, Light Wind	HS	1	8:39	9:56	No	3400	247	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, November 11, 2022	Alki	Light Wind, Overcast	CSL	1	9:59	10:34	No	3500	250	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, November 11, 2022	Alki	Overcast, Light Wind	HS	1	10:24	10:27	No	3750	253	Resting	No Pile Activity	No Take		
Friday, November 11, 2022	Alki	Overcast, Light Wind	HS	1	10:52	11:37	No	3100	245	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, November 11, 2022	Ferry	Overcast	HS	1	7:24	7:25	No	80	280	-	No Pile Activity	No Take		
Friday, November 11, 2022	Ferry	Overcast	HS	1	9:25	9:27	No	500	225	Swimming	No Pile Activity	No Take		
Friday, November 11, 2022	Magnolia	Overcast	HS	1	10:22	10:24	No	5000	304	Swimming	No Pile Activity	No Take		
Monday, November 14, 2022	Alki	Sunny, Light Wind, Moderate Wind	CSL	1	8:50	10:24	No	3200	250	Intermittent	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 14, 2022	Alki	Sunny, Light Wind, Moderate Wind	CSL	1	13:18	13:23	No	2000	240	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 14, 2022	Alki	Sunny, Light Wind, Moderate Wind	HS	1	14:25	14:27	No	3000	245	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 14, 2022	Pier 58	Sunny	CSL	1	7:34	7:36	No	300	270	Swimming	No Pile Activity	No Take		
Monday, November 14, 2022	Pier 58	Sunny	CSL	1	7:39	7:39	No	200	290	Swimming	No Pile Activity	No Take		
Monday, November 14, 2022	Pier 58	Sunny	CSL	1	8:08	8:10	No	150	260	Swimming	No Pile Activity	No Take		
Monday, November 14, 2022	Ferry	Sunny, Overcast, Heavy Wind	CSL	1	9:15	9:16	No	6900	270	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 14, 2022	Magnolia	Sunny	HS	2	7:26	7:26	No	5000	300	Swimming	No Pile Activity	No Take		
Monday, November 14, 2022	Magnolia	Sunny	HS	1	7:37	7:37	No	5000	300	Swimming	No Pile Activity	No Take		
Monday, November 14, 2022	Magnolia	Sunny	HS	1	7:45	7:46	No	5000	300	Swimming	No Pile Activity	No Take		
Monday, November 14, 2022	Magnolia	Sunny	HS	1	7:48	7:49	No	5000	300	Swimming	No Pile Activity	No Take		
Monday, November 14, 2022	Magnolia	Sunny	CSL	1	10:26	10:26	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, November 14, 2022	Magnolia	Sunny	HS	1	12:34	12:35	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Tuesday, November 15, 2022	Alki	Sunny, Moderate Wind	HS	1	8:01	8:03	No	3100	245	Swimming	No Pile Activity	Level B		
Tuesday, November 15, 2022	Alki	Sunny, Moderate Wind	CSL	1	10:17	10:25	No	3000	250	Swimming	No Pile Activity	Level B		
Tuesday, November 15, 2022	Alki	Sunny, Moderate Wind	CSL	1	10:54	11:28	No	3250	245	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Tuesday, November 15, 2022	Alki	Sunny, Moderate Wind	CSL	1	12:50	13:04	No	3500	250	Foraging	No Pile Activity	No Take		Previously observed earlier in the day.
Tuesday, November 15, 2022	Alki	Sunny, Moderate Wind	CSL	1	12:55	13:04	No	3500	250	Swimming	No Pile Activity	No Take		Observed entering area to forage with another California sea lion that was already present.

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Tuesday, November 15, 2022	Pier 63	Sunny	HS	1	7:19	7:24	No	200	165	Swimming	No Pile Activity	No Take		
Tuesday, November 15, 2022	Pier 63	Sunny	CSL	1	9:11	9:12	No	350	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Swam out from under Pier 62, then swam southwest.
Tuesday, November 15, 2022	Pier 63	Sunny	HS	1	10:18	10:19	No	350	240	Swimming	No Pile Activity	Level B		Appeared once and did not resurface again.
Tuesday, November 15, 2022	Pier 58	Sunny, Light Wind	CSL	1	14:35	14:35	No	100	265	Swimming	Reaction Observed	Level B	Impact Install Steel 30-inch	Observed breaching whilst leaving the Level B zone while the impact hammer was on.
Tuesday, November 15, 2022	Ferry	Sunny	HS	1	7:34	7:38	No	11279	270	Swimming	No Pile Activity	No Take		
Tuesday, November 15, 2022	Magnolia	Sunny, Whitecaps	HS	1	7:22	7:26	No	5000	303	Swimming	No Pile Activity	No Take		Very curious about person swimming.
Tuesday, November 15, 2022	Magnolia	Sunny, Whitecaps	HS	1	7:33	7:42	No	5100	303	Swimming	No Pile Activity	No Take		Occasionally pops head out of water and looks at swimmers.
Tuesday, November 15, 2022	Magnolia	Sunny, Whitecaps	HS	1	7:41	7:42	No	5050	302	Swimming	No Pile Activity	No Take		Swam slowly across my line of sight, just hanging out and stretching some.
Tuesday, November 15, 2022	Magnolia	Sunny, Whitecaps	HS	1	7:46	7:46	No	5000	303	Swimming	No Pile Activity	No Take		Popped head up to look at paddleboarder.
Tuesday, November 15, 2022	Magnolia	Sunny, Whitecaps	CSL	1	7:48	8:12	No	5050	302	Swimming	No Pile Activity	Level B		Swam slowly across my line of sight, just hanging out and stretching some.
Tuesday, November 15, 2022	Magnolia	Sunny	HS	1	8:01	8:01	No	5000	303	Swimming	No Pile Activity	Level B		Popped head up to look at paddleboarder.
Tuesday, November 15, 2022	Magnolia	Sunny	HS	1	8:35	8:35	No	5050	303	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Tuesday, November 15, 2022	Magnolia	Sunny	HS	1	8:47	8:47	No	5000	303	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed and recorded as a take of the day.
Tuesday, November 15, 2022	Magnolia	Sunny	HS	1	9:43	9:43	No	5100	303	Swimming	No Pile Activity	No Take		
Tuesday, November 15, 2022	Magnolia	Sunny	HS	1	12:50	12:51	No	5100	303	Resting	No Pile Activity	No Take		Popped head up to look at paddleboarder.
Wednesday, November 16, 2022	Alki	Sunny, Light Wind	HS	1	8:02	8:09	No	3500	250	Foraging	No Pile Activity	Level B		
Wednesday, November 16, 2022	Alki	Sunny, Light Wind	CSL	1	8:12	8:16	No	3200	245	Foraging	No Pile Activity	Level B		
Wednesday, November 16, 2022	Alki	Sunny, Light Wind	HS	1	8:29	8:31	No	4000	247	Resting	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed and recorded as a take of the day.
Wednesday, November 16, 2022	Alki	Sunny, Light Wind	CSL	1	9:25	10:01	No	3500	250	Foraging	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed and recorded as a take of the day.
Wednesday, November 16, 2022	Alki	Sunny, Light Wind	CSL	1	9:42	9:55	No	3250	250	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, November 16, 2022	Alki	Sunny, Light Wind	CSL	1	12:05	12:17	No	3500	250	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 16, 2022	Alki	Sunny, Light Wind	CSL	1	12:12	12:15	No	3250	250	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 16, 2022	Pier 63	Sunny	HS	1	10:27	10:28	No	320	300	Swimming	No Pile Activity	Level B		Surfaced once before diving and not appearing again.

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Wednesday, November 16, 2022	Pier 63	Sunny	CSL	1	11:47	11:49	No	200	240	Swimming	No Reaction Observed	Level B	Impact Install Steel 30-inch	Surfaced out of water and "porpoised" a few times. Headed south-southwest.
Wednesday, November 16, 2022	Ferry	Sunny, Moderate Wind	HS	1	8:27	8:27	No	3000	270	Resting	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed resting on the surface, and then diving underwater as the ferry moved past.
Wednesday, November 16, 2022	Ferry	Sunny, Moderate Wind	HS	1	10:11	10:11	No	500	210	Resting	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Looked really small, perhaps a juvenile. Stayed on the surface for a while and then went under when the ferry got closer.
Wednesday, November 16, 2022	Magnolia	Sunny	HS	1	7:25	8:08	No	5000	300	Swimming	No Pile Activity	Level B		
Wednesday, November 16, 2022	Magnolia	Sunny	CSL	2	10:47	10:49	No	5000	300	Swimming	No Pile Activity	No Take		
Wednesday, November 16, 2022	Magnolia	Sunny	CSL	1	12:13	12:14	No	5000	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 16, 2022	Magnolia	Sunny	HS	1	12:17	12:22	No	5000	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 16, 2022	Magnolia	Sunny	HS	1	12:45	12:50	No	5000	300	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, November 17, 2022	Alki	Sunny	CSL	1	7:56	7:59	No	3500	250	Foraging	No Pile Activity	No Take		
Thursday, November 17, 2022	Alki	Sunny	HS	1	8:33	8:35	No	4000	255	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, November 17, 2022	Alki	Sunny	CSL	1	9:16	9:17	No	3500	248	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, November 17, 2022	Alki	Sunny	CSL	1	13:10	13:11	No	4000	255	Swimming	No Pile Activity	No Take		
Thursday, November 17, 2022	Pier 58	Sunny	HS	1	8:11	8:11	No	100	280	-	No Pile Activity	Level B		
Thursday, November 17, 2022	Ferry	Sunny	CSL	1	9:46	9:48	No	12500	278	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, November 17, 2022	Ferry	Sunny	CSL	3	11:00	11:03	No	10000	270	-	No Pile Activity	No Take		
Thursday, November 17, 2022	Ferry	Sunny	HS	1	11:57	11:58	No	2000	255	-	No Pile Activity	No Take		
Thursday, November 17, 2022	Magnolia	Sunny	HS	1	8:26	8:30	No	5000	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, November 18, 2022	Alki	Sunny, Light Wind	HS	1	7:27	8:06	No	3400	250	Swimming	No Pile Activity	No Take		
Friday, November 18, 2022	Alki	Sunny, Light Wind	HS	1	8:46	11:21	No	4000	245	Resting	No Pile Activity	No Take		
Friday, November 18, 2022	Alki	Sunny, Light Wind	CSL	1	10:18	10:20	No	3200	250	Swimming	No Pile Activity	No Take		
Friday, November 18, 2022	Pier 58	Sunny	HS	1	8:42	8:42	No	100	240	Swimming	No Pile Activity	No Take		
Friday, November 18, 2022	Pier 58	Sunny	HS	1	9:56	9:59	No	100	270	Swimming	No Pile Activity	No Take		
Friday, November 18, 2022	Pier 58	Sunny	HS	1	11:28	11:29	No	100	270	Swimming	No Pile Activity	No Take		
Friday, November 18, 2022	Pier 58	Sunny	HS	1	11:52	0:02	No	80	245	Intermittent	No Pile Activity	No Take		Diving and resurfacing.
Friday, November 18, 2022	Ferry	Sunny, Heavy Wind	CSL	1	12:25	12:26	No	500	150	Swimming	No Pile Activity	No Take		
Friday, November 18, 2022	Magnolia	Sunny	HS	1	7:19	7:48	No	5000	303	Swimming	No Pile Activity	No Take		Observed swimming west then back to Magnolia/marina to forage.
Friday, November 18, 2022	Magnolia	Sunny	HS	1	7:27	7:46	No	4500	304	Swimming	No Pile Activity	No Take		Observed foraging and swimming in front of magnolia with another harbor seal.
Friday, November 18, 2022	Magnolia	Sunny	HS	1	7:54	8:30	No	4800	300	Foraging	No Pile Activity	No Take		Entered area from west, foraged, then swam west out of sight

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Friday, November 18, 2022	Magnolia	Sunny	CSL	1	8:06	8:43	No	5000	290	Swimming	No Pile Activity	No Take		Observed swimming east to marina then back west out of bay, surfaced often while foraging.
Friday, November 18, 2022	Magnolia	Sunny	HS	1	8:54	8:57	No	4500	304	Swimming	No Pile Activity	No Take		Observed swimming west.
Friday, November 18, 2022	Magnolia	Sunny	CSL	1	10:06	10:10	No	6000	290	Swimming	No Pile Activity	No Take		
Monday, November 21, 2022	Alki	Overcast	HS	1	7:39	13:29	No	3400	250	Intermittent	No Pile Activity	No Take		
Monday, November 21, 2022	Alki	Overcast	CSL	4	7:55	9:33	No	3200	250	Swimming	No Pile Activity	No Take		Spent time resting and foraging while swimming around the area.
Monday, November 21, 2022	Alki	Overcast	HS	1	8:27	8:29	No	3000	245	Swimming	No Pile Activity	No Take		
Monday, November 21, 2022	Alki	Overcast	CSL	3	9:47	10:54	No	3750	250	Intermittent	No Pile Activity	No Take		Same group as initially observed, however one member of the group left and was no longer visible in the area.
Monday, November 21, 2022	Alki	Overcast	CSL	2	13:18	13:42	No	3750	250	Resting	No Pile Activity	No Take		Both were resting and were part of the California sea lion group observed previously.
Monday, November 21, 2022	Ferry	Overcast	CSL	1	11:25	11:26	No	10000	280	Swimming	No Pile Activity	No Take		
Monday, November 21, 2022	Ferry	Overcast	HS	1	11:44	11:46	No	1000	270	Swimming	No Pile Activity	No Take		
Monday, November 21, 2022	Ferry	Overcast	HS	1	13:09	13:11	No	12500	278	Swimming	No Pile Activity	No Take		
Monday, November 21, 2022	Ferry	Overcast	CSL	1	13:21	13:22	No	11100	278	Swimming	No Pile Activity	No Take		
Monday, November 21, 2022	Magnolia	Sunny	HS	1	7:39	8:17	No	5000	300	Intermittent	No Pile Activity	No Take		
Monday, November 21, 2022	Magnolia	Sunny	HS	1	7:52	8:11	No	5100	300	Intermittent	No Pile Activity	No Take		
Monday, November 21, 2022	Magnolia	Sunny	HS	1	8:06	8:12	No	5000	300	Swimming	No Pile Activity	No Take		
Monday, November 21, 2022	Magnolia	Sunny	CSL	1	8:56	11:53	No	6000	300	Intermittent	No Pile Activity	No Take		
Monday, November 21, 2022	Magnolia	Sunny	HS	1	8:57	10:53	No	6000	300	Swimming	No Pile Activity	No Take		
Tuesday, November 22, 2022	Alki	Heavy Rain, Overcast	HS	1	10:02	10:02	No	2500	255	Resting	No Pile Activity	No Take		
Tuesday, November 22, 2022	Alki	Heavy Rain, Overcast	CSL	1	11:13	11:15	No	3500	255	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, November 22, 2022	Alki	Heavy Rain, Overcast	CSL	1	13:13	13:24	No	3000	250	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	May have been foraging because there were some big splashes, but it didn't stay in the area so may have just been passing through.
Tuesday, November 22, 2022	Alki	Heavy Rain, Overcast	HS	1	13:17	13:17	No	3375	249	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, November 22, 2022	Pier 58	Light Rain, Overcast	CSL	1	9:08	9:10	No	100	270	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Tuesday, November 22, 2022	Pier 63	Light Rain, Heavy Rain, Fog	CSL	1	9:09	9:12	No	300	165	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed swimming south toward ferry dock.
Tuesday, November 22, 2022	Pier 63	Light Rain, Heavy Rain, Fog	CSL	1	13:14	13:16	No	500	285	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	Observed swimming west out of the bay.
Tuesday, November 22, 2022	Ferry	Fog, Light Rain, Overcast	HS	1	8:24	8:26	No	10800	255	Swimming	No Pile Activity	No Take		
Wednesday, November 23, 2022	Alki	Overcast	HS	1	7:32	8:45	No	3500	250	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 23, 2022	Alki	Overcast	CSL	1	8:49	8:51	No	3750	255	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Wednesday, November 23, 2022	Alki	Overcast	CSL	1	9:39	9:45	No	2800	240	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 23, 2022	Pier 58	Sunny	HS	1	8:30	8:31	No	65	315	Swimming	No Reaction Observed	Level B	Impact Install Steel 30-inch	
Monday, November 28, 2022	Alki	Overcast, Light Rain, Snow/Sleet/Hail	CSL	1	8:03	11:18	No	3250	250	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, November 28, 2022	Alki	Overcast, Light Rain, Snow/Sleet/Hail	CSL	2	9:04	11:34	No	3000	240	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, November 28, 2022	Alki	Overcast, Light Rain, Snow/Sleet/Hail	HS	1	10:22	10:24	No	3100	245	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, November 28, 2022	Pier 58	Light Rain	HS	1	8:10	8:13	No	10	270	Swimming	No Pile Activity	No Take		
Tuesday, November 29, 2022	Alki	Overcast, Snow/Sleet/Hail, Light Rain, Moderate Wind	HS	1	9:04	13:10	No	3100	245	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	Intermittent viewing. Either resting or foraging.
Tuesday, November 29, 2022	Alki	Overcast, Snow/Sleet/Hail, Light Rain, Moderate Wind	CSL	1	9:15	12:11	No	3250	250	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	Intermittent viewing. Either resting or foraging.
Tuesday, November 29, 2022	Pier 58	Light Rain, Fog, Snow/Sleet/Hail	CSL	1	7:58	7:59	No	100	265	Swimming	No Pile Activity	Level B		
Tuesday, November 29, 2022	Ferry	Snow/Sleet/Hail, Overcast, Fog, Light Rain	HS	1	10:58	10:58	No	120	160	Swimming	No Pile Activity	Level B		
Tuesday, November 29, 2022	Magnolia	Moderate Wind, Snow/Sleet/Hail, Whitecaps, Fog	HS	1	9:40	9:41	No	6000	303	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, November 29, 2022	Magnolia	Moderate Wind, Snow/Sleet/Hail, Whitecaps, Fog	HS	1	11:55	11:57	No	6000	303	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 30, 2022	Alki	Overcast, Light Wind, Snow/Sleet/Hail	CSL	2	7:56	8:30	No	3000	240	Foraging	No Pile Activity	No Take		
Wednesday, November 30, 2022	Alki	Overcast, Light Wind, Snow/Sleet/Hail	CSL	1	9:12	9:24	No	3750	250	-	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 30, 2022	Alki	Overcast, Light Wind, Snow/Sleet/Hail	CSL	1	9:35	9:42	No	3000	240	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, November 30, 2022	Alki	Overcast, Light Wind, Snow/Sleet/Hail	CSL	1	11:54	13:12	No	3500	250	Intermittent	No Pile Activity	No Take		
Wednesday, November 30, 2022	Alki	Overcast, Light Wind, Snow/Sleet/Hail	CSL	1	12:43	12:45	No	3500	250	Foraging	No Pile Activity	No Take		
Wednesday, November 30, 2022	Alki	Overcast, Light Rain	CSL	2	13:21	13:31	No	3250	250	Swimming	No Pile Activity	No Take		
Wednesday, November 30, 2022	Ferry	Overcast, Moderate Wind, Fog, Light Rain	CSL	1	8:05	8:06	No	11600	270	Foraging	No Pile Activity	No Take		
Wednesday, November 30, 2022	Ferry	Overcast, Moderate Wind, Fog, Light Rain	CSL	1	12:04	12:07	No	800	155	Swimming	No Pile Activity	No Take		
Wednesday, November 30, 2022	Magnolia	Light Wind	HS	1	7:57	7:58	No	5000	302	Swimming	No Pile Activity	No Take		Observed swimming towards the marina.
Wednesday, November 30, 2022	Magnolia	Light Wind	HS	1	8:42	8:44	No	5200	303	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	

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Thursday, December 1, 2022	Alki	Moderate Wind, Whitecaps	HS	1	8:40	8:51	No	3100	245	Foraging	No Reaction Observed	Level B	Impact Install Steel 30-inch	
Thursday, December 1, 2022	Pier 58	Overcast	CSL	2	8:01	8:02	No	100	270	Swimming	No Pile Activity	Level B		
Thursday, December 1, 2022	Magnolia	Overcast, Light Wind	HS	2	7:44	7:49	No	5000	300	Swimming	No Pile Activity	No Take		
Thursday, December 1, 2022	Magnolia	Overcast, Light Wind	CSL	1	7:51	7:56	No	5000	300	Swimming	No Pile Activity	No Take		
Friday, December 2, 2022	Alki	Sunny	HS	1	9:34	12:11	No	3000	240	Intermittent	No Pile Activity	No Take		
Friday, December 2, 2022	Ferry	Overcast	HS	1	10:54	10:54	No	2000	270	Resting	No Pile Activity	No Take		
Friday, December 2, 2022	Ferry	Overcast	HS	1	10:58	10:58	No	500	210	Resting	No Pile Activity	No Take		
Monday, December 5, 2022	Alki	Overcast	CSL	1	7:47	8:07	No	3500	250	Swimming	No Pile Activity	No Take		
Monday, December 5, 2022	Alki	Overcast	KW	6	10:51	12:08	No	7000	255	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Were confirmed outside of Exclusion Zone when the vibe was on. Entered the Exclusion zone after pile work ended.
Monday, December 5, 2022	Alki	Overcast	HS	1	11:08	11:08	No	3500	250	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, December 5, 2022	Alki	Overcast	CSL	1	12:40	12:43	No	3100	245	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, December 5, 2022	Alki	Overcast	CSL	1	14:01	14:06	No	3750	252	Foraging	No Pile Activity	Level B		
Monday, December 5, 2022	Pier 58	Overcast	CSL	1	8:16	8:16	No	100	245	Swimming	No Pile Activity	No Take		
Monday, December 5, 2022	Pier 58	Overcast	CSL	1	8:27	8:27	No	150	275	Swimming	No Pile Activity	No Take		
Monday, December 5, 2022	Ferry	Overcast, Light Wind, Whitecaps	HS	1	8:25	8:28	No	1500	225	Intermittent	No Pile Activity	No Take		
Monday, December 5, 2022	Ferry	Overcast, Light Wind, Whitecaps	HS	1	8:31	8:32	No	1200	255	Swimming	No Pile Activity	No Take		
Monday, December 5, 2022	Ferry	Overcast, Light Wind, Whitecaps	HS	2	9:32	9:34	No	3000	270	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, December 5, 2022	Ferry	Overcast, Light Wind, Whitecaps	KW	4	11:30	11:40	No	6000	242	Swimming	No Pile Activity	No Take		
Monday, December 5, 2022	Ferry	Overcast, Light Wind, Whitecaps	KW	3	11:43	11:52	Yes	5500	255	Swimming	No Pile Activity	No Take		
Monday, December 5, 2022	Magnolia	Overcast	HS	1	7:55	7:57	No	5000	300	Swimming	No Pile Activity	No Take		
Monday, December 5, 2022	Magnolia	Overcast	HS	2	8:09	8:11	No	5000	300	Swimming	No Pile Activity	No Take		
Monday, December 5, 2022	Magnolia	Overcast	HS	1	11:14	11:16	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Tuesday, December 6, 2022	Alki	Overcast, Light Wind	CSL	1	7:44	12:42	No	3100	240	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	Observed swimming away.
Tuesday, December 6, 2022	Alki	Overcast, Light Wind	CSL	1	7:53	11:13	No	3100	240	Intermittent	No Pile Activity	No Take		Observed farther away in morning.
Tuesday, December 6, 2022	Alki	Overcast, Light Wind	HS	1	9:18	12:15	No	2000	240	Intermittent	No Reaction Observed	Level B	Vibratory and Impact Install Steel 30-inch	Observed as far as 3750 m. Distance/bearing closest observed.
Tuesday, December 6, 2022	Alki	Overcast, Light Wind	HS	1	10:33	10:35	No	4200	253	Resting	No Pile Activity	Level B		
Tuesday, December 6, 2022	Alki	Overcast, Light Wind	HS	1	14:35	14:41	No	3750	253	Swimming	No Pile Activity	No Take		Previously observed and recorded as a take of the day.
Tuesday, December 6, 2022	Ferry	Overcast	HS	1	8:40	8:44	No	8700	242	Swimming	No Pile Activity	No Take		
Tuesday, December 6, 2022	Ferry	Overcast	HS	1	10:06	10:08	No	10400	270	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	
Tuesday, December 6, 2022	Ferry	Overcast	HS	1	12:25	12:27	No	11400	278	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	

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Tuesday, December 6, 2022	Ferry	Overcast	SSL	3	12:30	12:33	No	10621	270	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, December 6, 2022	Magnolia	Overcast	HS	1	10:36	10:37	No	5000	300	Swimming	No Pile Activity	Level B		
Wednesday, December 7, 2022	Alki	Sunny, Overcast	HS	1	9:08	9:10	No	4000	253	Foraging	No Pile Activity	No Take		
Wednesday, December 7, 2022	Alki	Sunny, Overcast	SSL	1	13:58	14:05	No	3000	240	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, December 7, 2022	Alki	Sunny, Overcast	CSL	1	15:24	15:41	No	3250	250	Foraging	No Pile Activity	Level B		
Wednesday, December 7, 2022	Alki	Sunny, Overcast	CSL	1	15:37	15:41	No	3750	252	Foraging	No Pile Activity	Level B		
Wednesday, December 7, 2022	Pier 58	Overcast	CSL	1	11:28	11:29	No	100	270	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, December 7, 2022	Ferry	Overcast, Light Wind, Whitecaps, Sunny	CSL	1	9:26	9:28	No	700	240	Swimming	No Pile Activity	No Take		
Wednesday, December 7, 2022	Ferry	Overcast, Light Wind, Whitecaps, Sunny	CSL	1	10:31	10:32	No	12200	280	Swimming	No Pile Activity	No Take		
Wednesday, December 7, 2022	Ferry	Overcast, Light Wind, Whitecaps, Sunny	HS	1	13:12	13:14	No	500	230	Resting	No Pile Activity	No Take		
Wednesday, December 7, 2022	Magnolia	Overcast	HS	1	8:13	8:16	No	5000	304	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, December 7, 2022	Magnolia	Overcast	HS	2	8:21	8:21	No	5050	304	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	One swimming with head above water, and one just popped its head up. Hanging out together.
Wednesday, December 7, 2022	Magnolia	Overcast	CSL	1	9:25	9:31	No	5100	304	Swimming	No Pile Activity	No Take		
Wednesday, December 7, 2022	Magnolia	Overcast	CSL	1	10:17	10:18	No	5100	303	Swimming	No Pile Activity	Level B		
Wednesday, December 7, 2022	Magnolia	Overcast	HS	1	11:43	11:43	No	5050	304	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, December 7, 2022	Magnolia	Overcast, Moderate Wind, Whitecaps	HS	1	15:38	15:38	No	5000	304	Resting	No Pile Activity	Level B		Surfaced briefly to look around.
Thursday, December 8, 2022	Alki	Overcast	CSL	3	7:57	8:37	No	3500	250	Foraging	Reaction Observed	Level B	Vibratory Install Steel 30-inch	The group of three California sea lions briefly separated around the time the vibe hammer was turned on. Were back to interacting with each other and foraging within a few minutes.
Thursday, December 8, 2022	Alki	Overcast	SSL	1	8:39	8:45	No	3500	255	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, December 8, 2022	Alki	Overcast	CSL	2	9:04	9:07	No	3250	250	Swimming	No Pile Activity	Level B		
Thursday, December 8, 2022	Alki	Overcast	HS	1	9:52	10:14	No	3100	245	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, December 8, 2022	Alki	Overcast	CSL	2	13:38	13:42	No	3750	252	Swimming	No Pile Activity	No Take		Previously observed and recorded as a take of the day.
Thursday, December 8, 2022	Alki	Overcast	CSL	1	13:38	14:12	No	3250	250	Foraging	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed and recorded as a take of the day.
Thursday, December 8, 2022	Alki	Overcast	HS	1	13:43	14:09	No	3250	250	Resting	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, December 8, 2022	Alki	Overcast	CSL	1	14:45	14:54	No	3500	250	Swimming	No Pile Activity	No Take		Previously observed and recorded as a take of the day.
Thursday, December 8, 2022	Magnolia	Light Rain, Overcast, Heavy Wind	HS	1	11:58	11:59	No	5000	300	Swimming	No Pile Activity	No Take		

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Friday, December 9, 2022	Alki	Overcast	CSL	2	8:07	9:36	No	3250	250	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	Intermittent viewing. Mostly foraging. Both males.
Friday, December 9, 2022	Alki	Overcast	CSL	4	9:47	10:08	No	3000	235	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	Observed swimming away from the rest of the group. Seemed to be foraging when they reached the entered bearing/distance. All four females.
Friday, December 9, 2022	Alki	Overcast	HS	1	10:12	10:16	No	3100	245	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, December 9, 2022	Alki	Overcast	CSL	1	10:29	10:31	No	3500	250	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	One of the males from first observation
Friday, December 9, 2022	Alki	Overcast	KW	4	11:09	11:28	No	8000	250	Swimming	No Pile Activity	No Take		
Friday, December 9, 2022	Alki	Overcast, Light Rain	CSL	2	13:16	13:22	No	3500	250	Swimming	No Pile Activity	Level B		Both were females. So, not the two individuals that were takes earlier, but maybe from the group of four observed during a non-take time.
Friday, December 9, 2022	Alki	Overcast, Light Rain	CSL	1	14:17	14:19	No	3100	245	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	One of the males from earlier. Already a take.
Friday, December 9, 2022	Pier 58	Overcast, Sunny	HS	1	12:20	12:21	No	80	310	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Friday, December 9, 2022	Pier 58	Overcast, Sunny	CSL	1	14:40	14:42	No	200	275	Swimming	No Pile Activity	Level B		
Friday, December 9, 2022	Ferry	Whitecaps, Moderate Wind, Light Wind	KW	3	9:57	10:00	No	7000	270	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	Observed porpoising very close to the ferry.
Friday, December 9, 2022	Ferry	Whitecaps, Moderate Wind, Light Wind	HS	1	12:49	12:49	No	2000	255	Resting	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed resting before diving as the ferry came by.
Friday, December 9, 2022	Ferry	Whitecaps, Moderate Wind, Light Wind	HS	1	13:20	13:20	No	2100	255	Resting	No Pile Activity	Level B		
Friday, December 9, 2022	Magnolia	Moderate Wind, Whitecaps, Light Wind, Overcast	HS	1	8:16	8:18	No	5100	304	Swimming	No Pile Activity	No Take		Observed swimming northwest.
Friday, December 9, 2022	Magnolia	Moderate Wind, Whitecaps, Light Wind, Overcast	HS	1	8:59	9:02	No	5000	304	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Surfaced several times to rest.
Friday, December 9, 2022	Magnolia	Moderate Wind, Whitecaps, Light Wind, Overcast	HS	1	10:01	10:16	No	5050	304	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, December 12, 2022	Alki	Overcast, Light Rain, Moderate Wind, Whitecaps	CSL	1	12:27	12:33	No	3250	250	Foraging	No Pile Activity	No Take		
Monday, December 12, 2022	Ferry	Light Rain, Overcast, Heavy Wind	HS	1	9:42	9:42	No	11600	270	Swimming	No Pile Activity	No Take		
Monday, December 12, 2022	Ferry	Light Rain, Overcast, Heavy Wind	HS	1	10:13	10:14	No	400	190	Foraging	No Pile Activity	Level B		
Monday, December 12, 2022	Ferry	Light Rain, Overcast, Heavy Wind	HS	1	10:17	10:18	No	350	190	Intermittent	No Pile Activity	No Take		Previously observed and recorded as a take of the day.

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Monday, December 12, 2022	Magnolia	Overcast, Light Wind, Light Rain, Sunny	HS	1	7:59	8:31	No	5100	304	Foraging	No Pile Activity	No Take		Foraged in front of beach for a while. would disappear underwater for long periods.
Monday, December 12, 2022	Magnolia	Overcast, Light Wind, Light Rain, Sunny	CSL	1	9:56	9:58	No	5000	300	Swimming	No Pile Activity	Level B		
Monday, December 12, 2022	Magnolia	Overcast, Light Wind, Light Rain, Sunny	HS	1	10:33	10:34	No	5000	304	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed watched beachgoers before diving underwater.
Tuesday, December 13, 2022	Alki	Overcast	CSL	1	8:13	8:33	No	3100	245	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, December 13, 2022	Alki	Overcast	CSL	1	8:34	8:37	No	3000	240	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, December 13, 2022	Alki	Overcast	CSL	1	8:52	9:05	No	3100	245	Swimming	No Pile Activity	No Take		
Tuesday, December 13, 2022	Ferry	Overcast	HS	1	7:58	8:00	No	60	300	Swimming	No Pile Activity	Level B		
Wednesday, December 14, 2022	Alki	Sunny, Overcast	HS	1	8:28	8:40	No	3250	250	Swimming	No Pile Activity	No Take		
Wednesday, December 14, 2022	Pier 58	Sunny	CSL	1	8:28	8:31	No	80	295	Swimming	No Pile Activity	No Take		
Wednesday, December 14, 2022	Ferry	Sunny, Overcast, Moderate Wind	CSL	1	9:39	9:39	No	520	165	Swimming	No Pile Activity	Level B		
Wednesday, December 14, 2022	Ferry	Sunny, Overcast, Moderate Wind	HS	1	10:16	10:16	No	10601	270	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	
Wednesday, December 14, 2022	Ferry	Sunny, Overcast, Moderate Wind	CSL	1	11:26	11:27	No	600	165	Swimming	No Pile Activity	Level B		
Wednesday, December 14, 2022	Ferry	Sunny, Overcast, Moderate Wind	CSL	1	11:34	11:34	No	4000	260	Foraging	No Pile Activity	Level B		
Wednesday, December 14, 2022	Magnolia	Overcast	HS	1	7:58	7:58	No	5000	300	Swimming	No Pile Activity	No Take		
Wednesday, December 14, 2022	Magnolia	Overcast	HS	1	8:30	8:31	No	5000	300	Swimming	No Pile Activity	No Take		
Wednesday, December 14, 2022	Magnolia	Overcast	HS	1	9:56	9:56	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, December 14, 2022	Magnolia	Overcast	HS	1	10:02	10:02	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, December 14, 2022	Magnolia	Overcast	HS	1	11:30	11:31	No	5000	300	Swimming	No Pile Activity	Level B		
Wednesday, December 14, 2022	Magnolia	Overcast	CSL	2	13:09	13:11	No	5000	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, December 15, 2022	Alki	Sunny, Overcast	CSL	2	8:28	8:46	No	4000	253	Resting	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, December 15, 2022	Alki	Sunny, Overcast	CSL	1	9:17	9:21	No	3250	250	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	One of the two from previous observation. Previously observed and recorded as a take of the day.
Thursday, December 15, 2022	Alki	Sunny, Overcast	CSL	1	9:31	9:31	No	4000	253	Foraging	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Other individual from first observation. Previously taken.
Thursday, December 15, 2022	Alki	Sunny, Overcast	CSL	1	10:08	10:10	No	3000	240	Foraging	No Pile Activity	Level B		
Thursday, December 15, 2022	Ferry	Sunny	HS	1	8:10	8:10	No	500	185	Resting	No Pile Activity	Level B		Surfaced briefly.
Thursday, December 15, 2022	Magnolia	Sunny, Overcast	HS	1	8:01	8:05	No	5000	304	Swimming	No Pile Activity	Level B		
Thursday, December 15, 2022	Magnolia	Sunny, Overcast	HS	1	8:57	9:09	No	5100	304	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed a lot of surfacing and diving.
Thursday, December 15, 2022	Magnolia	Sunny, Overcast	CSL	1	9:05	9:13	No	4100	305	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed foraging near the shore by the marina before swimming northwest.
Friday, December 16, 2022	Alki	Sunny	HS	1	9:17	9:19	No	3100	270	Swimming	No Pile Activity	No Take		

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Friday, December 16, 2022	Ferry	Overcast	HS	1	8:13	8:14	No	1000	270	Swimming	No Pile Activity	No Take		
Friday, December 16, 2022	Ferry	Overcast	HS	1	9:14	9:15	No	2000	270	Swimming	No Pile Activity	No Take		
Friday, December 16, 2022	Magnolia	Sunny	HS	1	8:00	8:08	No	5000	304	Intermittent	No Pile Activity	No Take		Adult.
Friday, December 16, 2022	Magnolia	Sunny	HS	1	8:25	8:25	No	5000	304	Swimming	No Pile Activity	No Take		
Friday, December 16, 2022	Magnolia	Sunny	HS	2	8:38	8:38	No	5000	304	Swimming	No Pile Activity	No Take		Two adults, possibly previously observed in the area.
Friday, December 16, 2022	Magnolia	Sunny	HS	1	8:49	8:51	No	5000	303	Swimming	No Pile Activity	No Take		Possibly the same observation as before.
Friday, December 16, 2022	Magnolia	Sunny	HS	1	9:03	9:03	No	5050	304	Swimming	No Pile Activity	No Take		
Monday, December 19, 2022	Alki	Overcast, Snow/Sleet/Hail	HS	1	8:19	10:31	No	3750	252	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Intermittent viewing. Initially resting. Predominantly foraging.
Monday, December 19, 2022	Alki	Overcast, Snow/Sleet/Hail	HS	1	12:11	12:20	No	3100	245	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, December 19, 2022	Alki	Overcast, Snow/Sleet/Hail	HS	1	14:12	14:17	No	4200	253	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	Previously observed and recorded as a take of the day.
Monday, December 19, 2022	Pier 58	Snow/Sleet/Hail, Overcast	CSL	1	11:26	11:27	No	100	300	Swimming	Reaction Observed	Level B	Impact Install Steel 30-inch	Observed breaching whilst leaving the Level B zone while the impact hammer was on.
Monday, December 19, 2022	Ferry	Snow/Sleet/Hail, Moderate Wind, Overcast, Fog	HS	1	9:11	9:11	No	3500	270	Swimming	No Pile Activity	Level B		
Monday, December 19, 2022	Ferry	Snow/Sleet/Hail, Moderate Wind, Overcast, Fog	HS	1	13:18	13:18	No	5000	270	Swimming	No Pile Activity	Level B		
Monday, December 19, 2022	Ferry	Snow/Sleet/Hail, Moderate Wind, Overcast, Fog	HS	1	14:11	14:11	No	11600	270	Resting	No Pile Activity	No Take		
Monday, December 19, 2022	Magnolia	Overcast, Snow/Sleet/Hail	HS	1	8:23	8:55	No	5000	304	Foraging	No Pile Activity	Level B		
Monday, December 19, 2022	Magnolia	Overcast, Snow/Sleet/Hail	CSL	2	9:22	9:23	No	5000	300	Other	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed surfacing to rest, before continuing to swim.
Monday, December 19, 2022	Magnolia	Overcast, Snow/Sleet/Hail	HS	1	9:54	9:55	No	5000	304	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, December 19, 2022	Magnolia	Overcast, Snow/Sleet/Hail	HS	1	10:43	10:44	No	5100	304	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, December 19, 2022	Magnolia	Overcast, Snow/Sleet/Hail	HS	1	13:44	13:45	No	5100	304	Other	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed surfacing to rest, before continuing to swim.
Monday, December 19, 2022	Magnolia	Overcast	HS	2	14:18	14:19	No	5200	303	Other	No Reaction Observed	No Take	Impact Install Steel 30-inch	Observed swimming with another harbor seal. Previously observed and recorded as a take of the day.
Tuesday, December 20, 2022	Alki	Overcast, Heavy Wind, Whitecaps, Snow/Sleet/Hail, Fog	CSL	2	11:51	11:58	No	3750	252	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	

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Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Tuesday, December 20, 2022	Alki	Overcast, Heavy Wind, Whitecaps, Snow/Sleet/Hail, Fog	HS	1	13:50	14:01	No	3000	240	Resting	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, December 20, 2022	Alki	Overcast, Heavy Wind, Whitecaps, Snow/Sleet/Hail, Fog	CSL	1	14:01	14:04	No	3100	245	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	1st of 2 California sea lions from first observation.
Tuesday, December 20, 2022	Alki	Overcast, Heavy Wind, Whitecaps, Snow/Sleet/Hail, Fog	CSL	1	14:11	14:12	No	3000	240	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	2nd individual from observation.
Tuesday, December 20, 2022	Ferry	Light Rain, Light Wind, Overcast	HS	1	8:25	8:27	No	7700	240	Other	No Pile Activity	No Take		
Tuesday, December 20, 2022	Magnolia	Heavy Rain, Snow/Sleet/Hail	HS	1	8:35	8:35	No	4900	303	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Tuesday, December 20, 2022	Magnolia	Heavy Rain, Snow/Sleet/Hail	HS	1	11:10	11:11	No	4900	303	Swimming	No Pile Activity	Level B		
Tuesday, December 20, 2022	Magnolia	Heavy Rain, Snow/Sleet/Hail	HS	1	11:42	11:42	No	4850	303	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, December 21, 2022	Alki	Overcast, Moderate Wind, Whitecaps	HS	1	8:14	8:16	No	3500	250	Swimming	No Pile Activity	Level B		
Wednesday, December 21, 2022	Alki	Overcast, Moderate Wind, Whitecaps	CSL	1	8:37	8:48	No	3750	252	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, December 21, 2022	Pier 58	Overcast, Sunny	HS	1	11:35	11:46	No	100	285	Foraging	No Pile Activity	Level B		Appeared in area shortly after last hammer strike and swam closer to pile where gulls were eating dead fish.
Wednesday, December 21, 2022	Magnolia	Overcast, Sunny	HS	1	7:55	7:56	No	5000	304	Swimming	No Pile Activity	No Take		
Wednesday, December 21, 2022	Magnolia	Overcast, Sunny	HS	4	8:48	9:00	No	4950	303	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	All look like juveniles or adults. Initially spotted at 4950 m, and then gradually swam west along the shoreline.
Thursday, December 22, 2022	Alki	Sunny, Overcast	HS	1	10:18	10:28	No	3550	253	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	Adult, swimming west.
Thursday, December 22, 2022	Alki	Sunny, Overcast	HS	1	10:24	10:24	No	2750	250	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, December 22, 2022	Alki	Sunny, Overcast	HS	1	12:35	12:36	No	3350	253	Swimming	No Pile Activity	Level B		
Thursday, December 22, 2022	Alki	Sunny, Overcast	HS	1	13:19	13:19	No	3750	252	Resting	No Pile Activity	Level B		
Thursday, December 22, 2022	Ferry	Sunny	CSL	1	9:32	9:37	No	80	294	Foraging	No Pile Activity	Level B		
Thursday, December 22, 2022	Ferry	Sunny	CSL	1	11:31	11:32	No	1800	245	Foraging	No Pile Activity	No Take		
Thursday, December 22, 2022	Magnolia	Sunny, Overcast	HS	3	7:58	8:08	No	5100	304	Swimming	No Pile Activity	No Take		Observed pair resting together before swimming out of the area together.
Thursday, December 22, 2022	Magnolia	Sunny, Overcast	CSL	1	8:23	8:25	No	5000	300	Swimming	No Pile Activity	No Take		Observed swimming east toward the marina.
Thursday, December 22, 2022	Magnolia	Sunny, Overcast	HS	1	9:37	9:40	No	5000	304	Swimming	No Pile Activity	No Take		
Tuesday, January 3, 2023	Pier 58	Overcast	CSL	1	8:30	9:21	No	3750	252	Foraging	No Pile Activity	No Take		
Tuesday, January 3, 2023	Pier 58	Overcast	HS	1	9:02	9:11	No	3750	252	Resting	No Pile Activity	No Take		
Tuesday, January 3, 2023	Pier 58	Overcast	CSL	1	9:24	9:41	No	3000	240	Swimming	No Pile Activity	No Take		

Table A-2
Waterfront Park Daily Observations

Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Monday, January 30, 2023	Pier 58	Sunny	CSL	1	8:28	8:32	No	3250	250	Swimming	No Reaction Observed	Level B	Vibratory Removal Steel 30-inch	
Monday, January 30, 2023	Pier 58	Sunny	CSL	1	10:08	10:10	No	3250	250	Resting	No Pile Activity	No Take		
Monday, January 30, 2023	Pier 58	Sunny, Moderate Wind	HS	1	9:33	9:36	No	5000	300	Swimming	No Pile Activity	No Take		Observed swimming around very quickly.
Wednesday, February 1, 2023	Pier 58	Sunny, Overcast	HS	1	11:58	12:00	No	3250	250	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, February 1, 2023	Pier 58	Sunny, Overcast	HS	1	14:12	14:19	No	3000	240	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, February 1, 2023	Pier 58	Sunny, Overcast	CSL	1	8:40	8:41	No	100	290	Swimming	No Pile Activity	No Take		
Wednesday, February 1, 2023	Pier 58	Sunny, Overcast	CSL	1	11:44	11:45	No	80	285	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, February 1, 2023	Pier 58	Sunny, Overcast	CSL	1	9:33	9:45	No	2000	280	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, February 1, 2023	Pier 58	Sunny, Overcast	HS	1	9:50	9:55	No	2500	280	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, February 1, 2023	Pier 58	Sunny, Overcast	HS	1	11:00	11:10	No	4000	290	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, February 1, 2023	Pier 58	Sunny, Overcast	HS	1	12:00	12:05	No	1000	285	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, February 1, 2023	Pier 58	Light Wind, Sunny	HS	2	7:36	7:56	No	5000	300	Foraging	No Pile Activity	No Take		Observed foraging since before sunrise before swimming around and leaving the area.
Wednesday, February 1, 2023	Pier 58	Light Wind, Sunny	HS	1	8:06	8:46	No	5000	304	Foraging	No Pile Activity	No Take		
Wednesday, February 1, 2023	Pier 58	Light Wind, Sunny	HS	1	11:19	11:39	No	4950	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, February 6, 2023	Pier 58	Heavy Wind, Overcast, Light Rain	HS	1	9:06	9:32	No	4900	304	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Monday, February 6, 2023	Pier 58	Heavy Wind, Overcast, Light Rain	HS	1	9:29	9:37	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed standing up in waves and look out at water.
Monday, February 6, 2023	Pier 58	Heavy Wind, Overcast, Light Rain	HS	1	10:00	22:04	No	4900	304	Foraging	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Observed near shore diving into water (in water whole time). Previously observed and recorded as a take of the day.
Tuesday, February 7, 2023	Pier 58	Overcast, Light Rain	HS	1	8:14	8:21	No	3750	252	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Tuesday, February 7, 2023	Pier 58	Overcast, Light Rain	CSL	1	9:40	9:56	No	4000	255	Foraging	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, February 7, 2023	Pier 58	Overcast, Light Rain	HS	1	10:32	10:39	No	3750	252	Resting	No Pile Activity	No Take		
Tuesday, February 7, 2023	Pier 58	Overcast, Light Rain	CSL	1	10:59	11:47	No	3400	250	Resting	No Pile Activity	Level B		
Tuesday, February 7, 2023	Pier 58	Sunny, Heavy Wind, Whitecaps	HS	1	14:04	14:17	No	3100	245	Resting	No Pile Activity	No Take		
Tuesday, February 7, 2023	Pier 58	Sunny, Heavy Wind, Whitecaps	CSL	1	14:54	15:42	No	3500	250	Resting	No Pile Activity	No Take		Previously observed and recorded as a take of the day.

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Tuesday, February 7, 2023	Pier 58	Whitecaps, Heavy Rain, Overcast, Heavy Wind	HS	1	8:47	8:52	No	5000	302	Swimming	No Reaction Observed	Level B	Impact Install Steel 30-inch	
Tuesday, February 7, 2023	Pier 58	Whitecaps, Heavy Rain, Overcast, Heavy Wind	HS	1	9:29	9:29	No	5000	304	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, February 8, 2023	Pier 58	Sunny, Overcast	CSL	1	7:47	9:17	No	3400	250	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Wednesday, February 8, 2023	Pier 58	Sunny, Overcast	HS	1	10:47	10:51	No	3100	245	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, February 8, 2023	Pier 58	Sunny, Overcast	CSL	1	12:07	12:33	No	3250	250	Swimming	No Pile Activity	Level B		
Wednesday, February 8, 2023	Pier 58	Overcast, Moderate Wind	CSL	1	9:00	9:02	No	200	270	Swimming	No Reaction Observed	Level B	Impact Install Steel 30-inch	
Wednesday, February 8, 2023	Pier 58	Overcast	HS	1	10:40	10:41	No	400	271	Intermittent	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	Observed leisurely swimming away from pile activity
Wednesday, February 8, 2023	Pier 58	Sunny	HS	1	7:35	7:35	No	5000	302	Intermittent	No Pile Activity	No Take		
Wednesday, February 8, 2023	Pier 58	Sunny	HS	2	10:59	11:00	No	4900	302	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Wednesday, February 8, 2023	Pier 58	Sunny	HS	1	12:08	12:09	No	5000	300	Intermittent	No Pile Activity	Level B		
Thursday, February 9, 2023	Pier 58	Sunny, Overcast	HS	1	8:11	8:27	No	3000	245	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, February 9, 2023	Pier 58	Sunny, Overcast	CSL	2	11:27	11:30	No	3100	245	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, February 9, 2023	Pier 58	Sunny, Overcast	CSL	1	11:51	11:55	No	3750	252	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, February 9, 2023	Pier 58	Sunny, Overcast	CSL	3	13:53	14:01	No	3500	250	Swimming	No Reaction Observed	No Take	Vibratory Install Steel 30-inch	Previously observed and recorded as a take of the day.
Thursday, February 9, 2023	Pier 58	Overcast	HS	1	7:35	7:40	No	50	220	Swimming	No Pile Activity	Level B		Observed leaving level A take zone before the start of pile activity.
Thursday, February 9, 2023	Pier 58	Overcast	HS	1	10:00	10:02	No	50	225	Swimming	Reaction Observed	Level B	Vibratory Install Steel 30-inch	Changed swimming directions as it entered the Level B zone during impact installation.
Thursday, February 9, 2023	Pier 58	Overcast	CSL	1	14:38	14:39	No	100	270	Swimming	Reaction Observed	Level B	Impact Install Steel 30-inch	Breaches while swimming past the active pile.
Thursday, February 9, 2023	Pier 58	Light Rain, Overcast, Sunny	CSL	1	9:58	9:59	No	9600	271	Swimming	No Pile Activity	No Take		
Thursday, February 9, 2023	Pier 58	Light Rain, Overcast, Sunny	HS	1	10:54	10:55	No	400	271	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Thursday, February 9, 2023	Pier 58	Overcast, Light Rain	HS	2	7:49	7:51	No	5000	303	Swimming	No Pile Activity	No Take		
Thursday, February 9, 2023	Pier 58	Overcast, Light Rain	HS	1	8:49	8:50	No	5000	303	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, February 9, 2023	Pier 58	Overcast, Light Rain	HS	1	8:58	9:01	No	5000	303	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Thursday, February 9, 2023	Pier 58	Overcast, Light Rain	HS	1	9:32	9:33	No	5000	303	Swimming	No Pile Activity	Level B		
Thursday, February 9, 2023	Pier 58	Overcast, Light Rain	HS	1	11:46	11:58	No	5000	303	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Friday, February 10, 2023	Pier 58	Sunny	CSL	1	8:16	8:26	No	3400	250	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Friday, February 10, 2023	Pier 58	Sunny	CSL	1	10:02	10:04	No	3500	255	Foraging	No Pile Activity	No Take		

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Date	Monitoring Site	Weather Conditions	Species	Number of Individuals	Observation Start Time	Observation End Time	Stop Work?	Distance from Pile (m)	Bearing from Pile (absolute)	Behavior	Reaction to Pile Activity	Takes	Activity at Time of Sighting	Notes
Friday, February 10, 2023	Pier 58	Sunny	CSL	1	12:26	13:23	No	3750	252	Resting	No Pile Activity	Level B		
Friday, February 10, 2023	Pier 58	Sunny	CSL	1	13:11	13:15	No	3250	250	Swimming	No Pile Activity	Level B		
Friday, February 10, 2023	Pier 58	Sunny	HS	1	13:41	13:46	No	4000	250	Resting	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Friday, February 10, 2023	Pier 58	Sunny, Light Wind	CSL		11:32	11:34	No	150	235	Swimming	No Pile Activity	No Take		
Friday, February 10, 2023	Pier 58	Sunny, Light Wind	HS	1	12:27	12:28	No	100	300	Swimming	No Pile Activity	No Take		
Friday, February 10, 2023	Pier 58	Sunny, Light Wind	HS	1	13:36	13:37	No	80	240	Swimming	No Pile Activity	Level B		
Friday, February 10, 2023	Pier 58	Overcast, Light Wind, Sunny	HS	1	14:34	14:34	No	5000	300	Swimming	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Friday, February 10, 2023	Pier 58	Overcast, Light Wind, Sunny	HS	1	15:44	15:44	No	5000	300	Swimming	No Pile Activity	Level B		
Monday, February 13, 2023	Pier 58	Overcast, Light Rain	CSL	1	7:31	7:33	No	3000	240	Swimming	No Pile Activity	No Take		
Monday, February 13, 2023	Pier 58	Overcast, Light Rain	CSL	1	8:15	8:17	No	3200	240	Swimming	No Reaction Observed	Level B	Impact Install Steel 30-inch	
Monday, February 13, 2023	Pier 58	Overcast, Light Rain	CSL	1	11:17	11:19	No	4000	255	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, February 13, 2023	Pier 58	Sunny, Overcast	HS	2	7:27	7:28	No	5000	302	Swimming	No Pile Activity	No Take		
Monday, February 13, 2023	Pier 58	Sunny, Overcast	HS	1	8:05	8:06	No	5300	302	Intermittent	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, February 13, 2023	Pier 58	Sunny, Overcast	HS	1	9:37	9:37	No	4900	302	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, February 13, 2023	Pier 58	Sunny, Overcast	HS	1	11:20	11:20	No	4900	302	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Monday, February 13, 2023	Pier 58	Sunny, Overcast	CSL	2	11:22	11:24	No	4900	300	Swimming	No Reaction Observed	No Take	Impact Install Steel 30-inch	
Tuesday, February 14, 2023	Pier 58	Sunny, Overcast, Whitecaps	CSL	2	12:46	13:09	No	3750	252	Foraging	No Reaction Observed	Level B	Vibratory Install Steel 30-inch	
Tuesday, February 14, 2023	Pier 58	Sunny, Whitecaps, Moderate Wind	CSL	1	8:10	8:20	No	850	271	Foraging	No Pile Activity	No Take		Observed successfully catching and eating fish near the dock.
Tuesday, February 14, 2023	Pier 58	Sunny	HS	1	7:28	7:30	No	5000	302	Swimming	No Pile Activity	No Take		
Tuesday, February 14, 2023	Pier 58	Sunny	HS	1	7:42	7:45	No	5000	302	Swimming	No Pile Activity	No Take		
Tuesday, February 14, 2023	Pier 58	Sunny	HS	2	8:17	8:17	No	5100	302	Swimming	No Pile Activity	No Take		
Tuesday, February 14, 2023	Pier 58	Sunny	HS	1	8:21	8:21	No	4900	302	Swimming	No Pile Activity	No Take		
Tuesday, February 14, 2023	Pier 58	Sunny	HS	1	12:01	12:01	No	5000	302	Intermittent	No Pile Activity	No Take		
Wednesday, February 15, 2023	Pier 58	Sunny	CSL	1	7:26	8:57	No	3500	250	Resting	No Pile Activity	No Take		
Wednesday, February 15, 2023	Pier 58	Sunny	HS	1	7:59	7:59	No	50	300	Swimming	No Pile Activity	No Take		
Wednesday, February 15, 2023	Pier 58	Sunny	CSL	3	8:23	8:25	No	10000	260	Swimming	No Pile Activity	No Take		

Notes:

CSL: California sea lion (otariids/eared)

HS: harbor seal (phocids/earless)

HP: harbor porpoise (high-frequency cetaceans)

SSL: Steller sea lion (otariid/eared)

KW: killer whale (mid-frequency cetaceans)

m: meter

Table A-3
Daily Summary of California Seal Lion Level B Takes, Observations with No Takes, and Totals

Date	California Sea Lion Level B Takes					California Sea Lion Observations with No Takes				
	Construction Site	Alki	Magnolia	Ferry	Level B Total	Construction Site	Alki	Magnolia	Ferry	No Take Total
Monday, October 3, 2022	3	0	0	0	3	0	5	0	0	5
Tuesday, October 4, 2022	7	0	0	0	7	8	5	0	0	13
Wednesday, November 2, 2022	3	2	0	0	5	0	14	1	1	16
Thursday, November 3, 2022	0	3	0	0	3	2	2	0	1	5
Friday, November 4, 2022	0	2	0	0	2	0	2	0	0	2
Monday, November 7, 2022	1	1	1	0	3	5	0	3	0	8
Tuesday, November 8, 2022	0	1	0	0	1	1	4	0	0	5
Wednesday, November 9, 2022	1	2	0	1	4	3	2	0	0	5
Thursday, November 10, 2022	0	4	0	0	4	0	11	0	0	11
Friday, November 11, 2022	0	0	0	0	0	0	5	0	0	5
Monday, November 14, 2022	0	2	1	1	4	3	0	0	0	3
Tuesday, November 15, 2022	2	2	1	0	5	0	2	0	0	2
Wednesday, November 16, 2022	1	2	0	0	3	0	3	3	0	6
Thursday, November 17, 2022	0	0	0	0	0	0	3	0	4	7
Tuesday, November 22, 2022	2	0	0	0	2	1	2	0	0	3
Wednesday, November 23, 2022	0	0	0	0	0	0	2	0	0	2
Monday, November 28, 2022	0	0	0	0	0	0	3	0	0	3
Tuesday, November 29, 2022	1	0	0	0	1	0	1	0	0	1
Wednesday, November 30, 2022	0	0	0	0	0	0	8	0	2	10
Thursday, December 1, 2022	2	0	0	0	2	0	0	1	0	1
Monday, December 5, 2022	0	1	0	0	1	2	2	0	0	4
Tuesday, December 6, 2022	0	0	0	0	0	0	2	0	0	2
Wednesday, December 7, 2022	1	2	1	0	4	0	0	1	2	3
Thursday, December 8, 2022	0	5	0	0	5	0	4	0	0	4
Friday, December 9, 2022	1	2	0	0	3	0	8	0	0	8
Monday, December 12, 2022	0	0	1	0	1	0	1	0	0	1
Tuesday, December 13, 2022	0	0	0	0	0	0	3	0	0	3
Wednesday, December 14, 2022	0	0	0	3	3	1	0	2	0	3
Thursday, December 15, 2022	0	3	1	0	4	0	2	0	0	2
Monday, December 19, 2022	1	0	2	0	3	0	0	0	0	0
Tuesday, December 20, 2022	0	2	0	0	2	0	2	0	0	2
Wednesday, December 21, 2022	0	1	0	0	1	0	0	0	0	0
Thursday, December 22, 2022	0	0	0	1	1	0	0	1	1	2
Tuesday, January 3, 2023	0	0	0	0	0	0	2	0	0	2
Monday, January 30, 2023	0	1	0	0	1	0	1	0	0	1
Wednesday, February 1, 2023	1	0	0	1	2	1	0	0	0	1
Tuesday, February 7, 2023	0	1	0	0	1	0	2	0	0	2
Wednesday, February 8, 2023	1	1	0	0	2	0	1	0	0	1
Thursday, February 9, 2023	1	3	0	0	4	0	3	0	1	4
Friday, February 10, 2023	0	2	0	0	2	0	2	0	0	2
Monday, February 13, 2023	0	1	0	0	1	0	2	2	0	4
Tuesday, February 14, 2023	0	2	0	0	2	0	0	0	1	1
Wednesday, February 15, 2023	0	0	0	0	0	0	1	0	3	4
Total	29	48	8	7	92	27	112	14	16	169

Table A-4
Daily Summary of Harbor Seal Level B Takes, Observations with No Takes, and Totals

Date	Harbor Seal Level B Takes					Harbor Seal Observations with No Takes				
	Construction Site	Alki	Magnolia	Ferry	Level B Total	Construction Site	Alki	Magnolia	Ferry	No Take Total
Tuesday, October 4, 2022	0	0	0	0	0	0	1	0	0	1
Wednesday, October 5, 2022	0	0	0	0	0	0	2	0	0	2
Wednesday, November 2, 2022	0	3	3	1	7	0	7	16	5	28
Thursday, November 3, 2022	0	5	2	0	7	0	2	11	0	13
Friday, November 4, 2022	0	1	1	0	2	0	7	3	0	10
Monday, November 7, 2022	1	5	8	1	15	0	3	3	0	6
Tuesday, November 8, 2022	0	0	0	0	0	0	4	15	1	20
Wednesday, November 9, 2022	1	2	5	0	8	1	5	4	0	10
Thursday, November 10, 2022	2	0	9	1	12	0	5	3	0	8
Friday, November 11, 2022	0	0	0	0	0	0	3	1	2	6
Monday, November 14, 2022	0	1	1	0	2	0	0	5	0	5
Tuesday, November 15, 2022	1	1	2	0	4	1	0	7	1	9
Wednesday, November 16, 2022	1	1	1	2	5	0	1	2	0	3
Thursday, November 17, 2022	1	0	0	0	1	0	1	1	1	3
Tuesday, November 22, 2022	0	0	0	0	0	0	2	0	1	3
Wednesday, November 23, 2022	1	0	0	0	1	0	1	0	0	1
Monday, November 28, 2022	0	0	0	0	0	1	1	0	0	2
Tuesday, November 29, 2022	0	0	0	1	1	0	1	2	0	3
Wednesday, November 30, 2022	0	0	0	0	0	0	0	2	0	2
Thursday, December 1, 2022	0	1	0	0	1	0	0	2	0	2
Friday, December 2, 2022	0	0	0	0	0	0	1	0	2	3
Monday, December 5, 2022	0	1	1	2	4	0	0	3	2	5
Tuesday, December 6, 2022	0	2	1	0	3	0	1	0	3	4
Wednesday, December 7, 2022	0	0	2	0	2	0	1	3	1	5
Thursday, December 8, 2022	0	1	0	0	1	0	1	1	0	2
Friday, December 9, 2022	1	0	1	2	4	0	1	2	0	3
Monday, December 12, 2022	0	0	1	1	2	0	0	1	2	3
Tuesday, December 13, 2022	0	0	0	1	1	0	0	0	0	0
Wednesday, December 14, 2022	0	0	3	0	3	0	1	2	1	4
Thursday, December 15, 2022	0	0	2	1	3	0	0	0	0	0
Friday, December 16, 2022	0	0	0	0	0	0	1	6	2	9
Monday, December 19, 2022	0	1	4	2	7	0	2	2	1	5
Tuesday, December 20, 2022	0	0	3	0	3	0	1	0	1	2
Wednesday, December 21, 2022	1	1	4	0	6	0	0	1	0	1
Thursday, December 22, 2022	0	2	0	0	2	0	2	4	0	6
Tuesday, January 3, 2023	0	0	0	0	0	0	1	0	0	1
Monday, January 30, 2023	0	0	0	0	0	0	0	1	0	1
Wednesday, February 1, 2023	0	1	1	3	5	0	1	3	0	4
Monday, February 6, 2023	0	0	2	0	2	0	0	1	0	1
Tuesday, February 7, 2023	0	1	1	0	2	0	2	1	0	3
Wednesday, February 8, 2023	0	1	3	1	5	0	0	1	0	1
Thursday, February 9, 2023	2	0	2	1	5	0	1	4	0	5
Friday, February 10, 2023	1	1	2	0	4	1	0	0	0	1
Monday, February 13, 2023	0	0	0	0	0	0	0	5	0	5
Tuesday, February 14, 2023	0	0	0	0	0	0	0	6	0	6
Wednesday, February 15, 2023	0	0	0	0	0	1	0	0	0	1
Total	13	32	65	20	130	5	63	124	26	218

Table A-5**Daily Summary of Steller Sea Lion Level B Takes, Observations with No Takes, and Totals**

Date	Steller Sea Lion Level B Takes					Steller Sea Lion Observations with No Takes				
	Construction Site	Alki	Magnolia	Ferry	Level B Total	Construction Site	Alki	Magnolia	Ferry	No Take Total
Wednesday, November 2, 2022	0	0	0	0	0	0	1	0	0	1
Tuesday, December 6, 2022	0	0	0	0	0	0	0	0	3	3
Wednesday, December 7, 2022	0	0	0	0	0	0	1	0	0	1
Thursday, December 8, 2022	0	1	0	0	1	0	0	0	0	0
Total	0	1	0	0	1	0	2	0	3	5

Table A-6
Daily Summary of Killer Whale Level B Takes, Observations with No Takes, and Totals

Date	Killer Whale Level B Takes					Killer Whale Observations with No Takes				
	Construction Site	Alki	Magnolia	Ferry	Level B Total	Construction Site	Alki	Magnolia	Ferry	No Take Total
Monday, November 7, 2022	0	0	0	0	0	0	6	8	19	33
Tuesday, November 8, 2022	0	0	0	0	0	0	0	15	2	17
Wednesday, November 9, 2022	0	0	0	0	0	0	15	4	20	39
Thursday, November 10, 2022	0	0	0	0	0	0	7	0	15	22
Monday, December 5, 2022	0	0	0	0	0	0	6	0	7	13
Friday, December 9, 2022	0	0	0	0	0	0	4	0	3	7
Total	0	0	0	0	0	0	38	27	66	131