Marine Mammal Monitoring and Mitigation Plan

Tongass Narrows Project (2023)

State Project #: SFHWY00085, SFHWY00150, SFHWY00109, SFHWY00153, SFHWY00154

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Acronyms and Abbreviations

BiOp	Biological Opinion
DOT&PF	Alaska Department of Transportation & Public Facilities
DPS	Distinct Population Segment
DTH	Down-the-Hole
ESA	Endangered Species Act
FR	*Federal Register*
IHA	Incidental Harassment Authorization
MMO	Marine Mammal Observer
MMPA	Marine Mammal Protection Act
NMFS	National Marine Fisheries Service
PSO	Protected Species Observer
QA	Quality Assurance
QC	Quality Control
wDPS	western Distinct Population Segment

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1 INTRODUCTION

The purpose of this Marine Mammal Monitoring and Mitigation Plan is to describe monitoring procedures for affected marine species and mitigation actions that will be implemented by the Alaska Department of Transportation & Public Facilities (DOT&PF) during pile installation and removal associated with the Tongass Narrows Project (Project; see Figure 1-1 and Figure 1-2). This Marine Mammal Monitoring and Mitigation Plan was prepared as part of the application for an Incidental Harassment Authorization (IHA) under the Marine Mammal Protection Act (MMPA) and in support of formal consultation with the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA).

The overall goal of the Marine Mammal Monitoring and Mitigation Plan is to comply with the Project IHA and Biological Opinion (BiOp) during in-water pile installation and removal by monitoring the Project area and documenting all marine mammals potentially exposed to noise at or above established thresholds; minimizing impacts on marine mammals through mitigation measures; and collecting data pertaining to marine mammal exposures (takes), occurrence, and behavior of marine mammals in the Project area.

1.1 Project Description

The in-water portion of the Project includes four methods of pile installation. These include vibratory and impact hammers, down-the-hole drilling of rock sockets, and installation of tension anchors at some locations. Most piles will be installed vertically (plumb), but some will be installed at an angle (battered). Tension anchors will be used to secure some piles to the bedrock to withstand uplift forces. Rock sockets will be drilled at other locations where overlying sediments are too shallow to adequately secure the bottom portion of the pile. Some piles will be seated in rock sockets as well as anchored with tension anchors. A vibratory hammer will be used to install or remove up to 84 temporary template piles, either steel H piles or 24-inch pipe piles, to a depth of 25 feet or less. Up to 26 previously installed piles will be removed with a vibratory hammer and reinstalled using vibratory, impact, or down-the-hole (DTH) methods, or a combination of methods. Up to 51 not-yet-installed permanent piles will be installed using vibratory, impact, or DTH methods, or a combination of methods. In total, up to 271 installation and removals for permanent and temporary piles are included in this Project (see the Project IHA, Table 1-2).

In addition, above-water construction will consist of the installation of concrete or steel platform decking panels, transfer bridges, dock-mounted fenders, pedestrian walkways, gangways, and utility lines. Upland construction activities will consist of new terminal facilities, staging areas, parking lot expansions, new roadways, retaining walls, stairways, and pedestrian walkways. No in-water noise is anticipated in association with above-water and upland construction activities, and no marine mammal monitoring will be required during above-water work.

The marine construction associated with the Project is ongoing, although issued IHAs are expected to expire prior to the issuance of this new authorization. A renewal has been requested for the current IHAs; however, DOT&PF is requesting issuance of this new IHA as soon as possible. See the Project IHA application for further design and construction details.

The Project has the potential to generate elevated levels of underwater noise that could exceed Level A (injury) and Level B (disturbance) harassment thresholds established by NMFS under the revised Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Technical Guidance; NMFS 2018) and the interim criteria (70 *Federal*

Register [FR] 1871–1875), respectively. Level A harassment means any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild. Level B harassment means any act of pursuit, torment, or annoyance that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering, but that does not have the potential to injure a marine mammal or marine mammal stock in the wild.

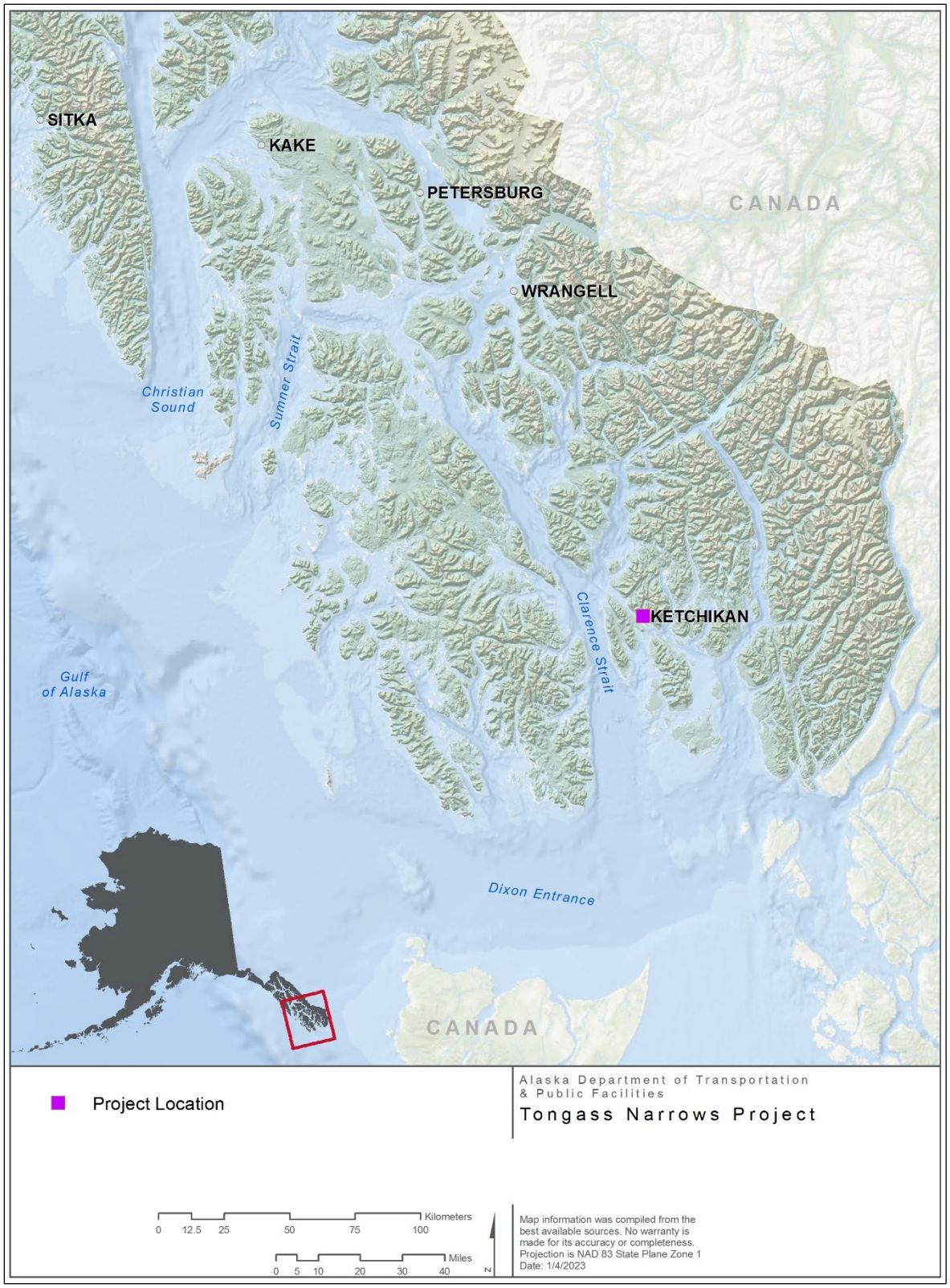

Figure 1-1. Site Location and Vicinity

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Figure 1-2. Tongass Narrows Project Area

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1.2 Protected Marine Mammals

Steller sea lion (*Eumetopias jubatus*), harbor seal (*Phoca vitulina*), northern elephant seal (*Mirounga angustirostris*), harbor porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), killer whale (*Orcinus orca*), gray whale (*Eschrichtius robustus*), minke whale (*Balaenoptera acutorostrata*), fin whale (*Balaenoptera physalus*), including the ESA-listed Northeast Pacific stock, and humpback whale (*Megaptera novaeangliae),* including the ESA-listed Mexico Distinct Population Segment (DPS) of humpback whales, may occur in the Project area; a number of Level B exposures was authorized for these marine mammal species under the MMPA (see Project IHA, NMFS 2023a). Additionally, a small number of Level A exposures was authorized for harbor seals, harbor porpoises, Dall's porpoise, Steller sea lions, and elephant seals under the MMPA (NMFS 2023a). Authorization for a small number of Level B exposures of the ESA-listed Mexico DPS of humpback whales and northeast Pacific stock of fin whales was also granted in the Project BiOp and Incidental Take Statement (NMFS 2023b).

The analysis of marine mammal exposures for the Project predicts 2,217 potential exposures of marine mammals to Level B harassment and 79 potential exposures of marine mammals to Level A harassment, for a total of 2,296 potential exposures (Table 1-1).

Table 1-1. Summary of the Numbers of Marine Mammal Level A and B Takes Authorized by NMFS

Species	DPS/Stock	Estimated Number of Exposures to Level B Harassment	Estimated Number of Exposures to Level A Harassment	Total Estimated Exposures (Level A and Level B)	Stock Abundance	Percent of Population
Steller sea lion	Eastern DPS	645	10	655	43,201	1.5
Harbor seal	Clarence Strait	1,137	39	1,176	27,659	4.3
Northern elephant seal	California Breeding Stock	14	5	19	187,386	<0.1
Harbor porpoise	Southeast Alaska Inland Waters Stock	60	15	75	1,302	5.8
Dall's porpoise	Gulf of Alaska	90	10	100	13,110	0.8
Pacific white-sided dolphin	North Pacific	60	0	60	26,880	0.2
Killer whale	Alaska Resident	64	0	64	2,347	2.7[a]
	Northern Resident				302	21.2[a]
	West Coast Transient				349	18.3[a]
Gray whale	Eastern North Pacific	10	0	10	26,960	<0.1
Minke whale	Alaska	4	0	4	Unknown	N/A
Humpback whale	Hawaii DPS	128	0	128	11,540	1.1[b]
	Mexico DPS	3	0	3	2,913	0.1[b]
Fin Whale	Northeast Pacific	2	0	2	3,168	0.1
Total	**N/A**	**2,217**	**79**	**2,296**	**N/A**	**N/A**

Note: DPS = distinct population segment.

[a] These percentages assume that all takes come from each individual killer whale stock; thus, the percentage should be adjusted down if multiple stocks are actually affected.

[b] Assumes that 2.4 percent of humpback whales exposed are members of the Mexico DPS (Wade et al. 2021).

2 MARINE MAMMAL MONITORING AND MITIGATION MEASURES

The complete list of required avoidance, minimization, and mitigation measures can be found in the Project IHA (NMFS 2023a) and BiOp (NMFS 2023b). Avoidance and minimization measures described here include establishment of Level A and Level B harassment zones, marine mammal monitoring, and specific mitigation measures that will be implemented during in-water pile installation and removal.

2.1 Shutdown Zones

During in-water pile installation or removal, the Contractor will monitor for all marine mammals within or approaching the Level A and Level B harassment zones. Monitoring all harassment zones, including the outer margins, enables trained Marine Mammal Observers (MMOs; also known as Protected Species Observers or PSOs) to be aware of and communicate the presence of marine mammals in the Project area and thus prepare for potential shutdown of activity and documentation of potential exposures (takes).

Distances to the Level A and Level B harassment thresholds, as defined by sound isopleths, vary by marine mammal functional hearing group, pile size, duration of installation, and pile-installation method (Table 2-1). Figures illustrating the maximum anticipated Level A and anticipated Level B harassment zones for the different numbers and types of piles, as well as installation methods, are provided in Figure 2-1 through Figure 2-5.

Note that the actual pile installation and removal durations may be longer or shorter than the numbers used for calculations in Table 2-1. Estimated durations of pile installation and removal methods are used to predict harassment zone sizes and are not intended to be caps or limits on these activities. It is anticipated that the actual durations will be determined based on the engineering specifications for the Project as determined by the Contractor.

For those marine mammal species for which Level B exposures have not been requested, in-water pile installation and removal will shut down immediately when the animals are sighted approaching or within the Level B zone. If a marine mammal authorized for Level B exposure is present in the Level B harassment zone, in-water pile installation and removal may continue, and a potential Level B exposure will be recorded. Pile installation by vibratory, impact, and DTH methods may occur when marine mammals for which Level B exposure has been authorized are in the Level B harassment zone, whether they entered the Level B zone from the Level A zone (if relevant) or from outside the Project area. If the number of potential Level B exposures reaches the authorized limit, pile installation will be stopped as these species approach the relevant isopleths to avoid additional exposures of these species. Additionally, MMOs will alert the Project Engineer and DOT&PF if Level A or B exposures reaches 80 percent of the authorized limit for any species.

A 10-meter minimum shutdown zone will be implemented for all species and all pile installation and removal methods to prevent direct contact and injury of marine mammals with construction equipment (Table 2-1). Shutdown zones shown in Table 2-1 have been rounded up to simplify management of monitoring.

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Table 2-1. Distances to Level A and B Harassment Isopleths and Shutdown Zones during Pile Installation and Removal

Activity	Pile Size	Minutes per Pile or Strikes per Pile	Piles Installed or Removed per day	Rounded Level A Zones and Minimum Shutdown Zones (m)										Level B Zones
				LF		MF		HF		PW		OW		
				Humpback Whale, Fin Whale, Minke Whale		Killer Whale, Pacific White-Sided Dolphin		Harbor Porpoise, Dall's Porpoise		Harbor Seal, Northern Elephant Seal		Steller Sea Lion		All Species
				No Level A Take		**No Level A Take**		**Level A Take Authorized**		**Level A Take Authorized**		**Level A Take Authorized**		
				Shutdown Zone to Avoid Take	Level A Zone	Shutdown Zone to Avoid Take	Level A Zone	Shutdown Zone	Level A Zone	Shutdown Zone	Level A Zone	Shutdown Zone	Level A Zone	
Vibratory Installation or Removal	30-inch	30 Minutes	1 Pile	50	10	10	1	80	14	30	6	10	1	11,659
		60 Minutes	3 Piles		49		5		72		30		3	
	24-inch, and H-pile	30 Minutes	1 Pile	40	6		1	60	9		4		1	7,365
		120 Minutes	3 piles		38		4		55		23		2	
DTH (Rock Socket)	24-inch	60 Minutes	Based on Minutes of Pile Installation	220	122	30	10	300	139	110	76	30	11	2,572
		120 Minutes			172		14		196		108		15	
		180 Minutes			211		17		240	220	132		19	
		240 Minutes		350	243		20		278		152		22	
		300 Minutes			272		22		311		170		24	
		360 Minutes			298		25		340		186		26	
		420 Minutes			322		26		368		201		28	
		480 Minutes			345		28		393		215		30	

Activity	Pile Size	Minutes per Pile or Strikes per Pile	Piles Installed or Removed per day	Rounded Level A Zones and Minimum Shutdown Zones (m)										Level B Zones
				LF		MF		HF		PW		OW		
DTH (Tension Anchor)	8-inch	60 Minutes	Based on Minutes of Pile Installation	170	36	10	2	140	41	70	21	10	2	1,274
		120 Minutes			53		3		62		31		4	
		180 Minutes			67		4		78		39		4	
		240 Minutes			80		5		93		46		5	
		300 Minutes			91		5		106		53		6	
		360 Minutes			101		6		117		58		6	
		420 Minutes			110		6		128		64		7	
		480 Minutes			119		7		139		69		7	
Impact	30-inch	200 Strikes	1 pile	550	342	30	13	300	407	190	183	30	14	2,154
			2 piles		543		20		646	300	291		22	
			3 piles	720	711		26		847		381		28	
	24-inch, and H-pile	200 Strikes	1 pile	140	136	10	5	300	162	80	73	20	6	1,000
			2 piles	290	216		8		258	160	116		9	
			3 piles		283		11		337		152		11	
		50 Strikes	1 pile	120	54	10	2	140	65	60	29	10	3	
			2 piles		86		3		102		46		4	
			3 piles		113		4		134		61		5	

Note: Actual pile installation and removal durations may be longer or shorter. Estimated durations of pile installation and removal methods are not intended to be caps or limits on these activities. It is anticipated that the actual durations will be determined based on the engineering specifications for the Project as determined by the Contractor. HF = high frequency; LF = low frequency; m = meters; MF = mid-frequency; OW = otariid in water; PW = phocid in water.

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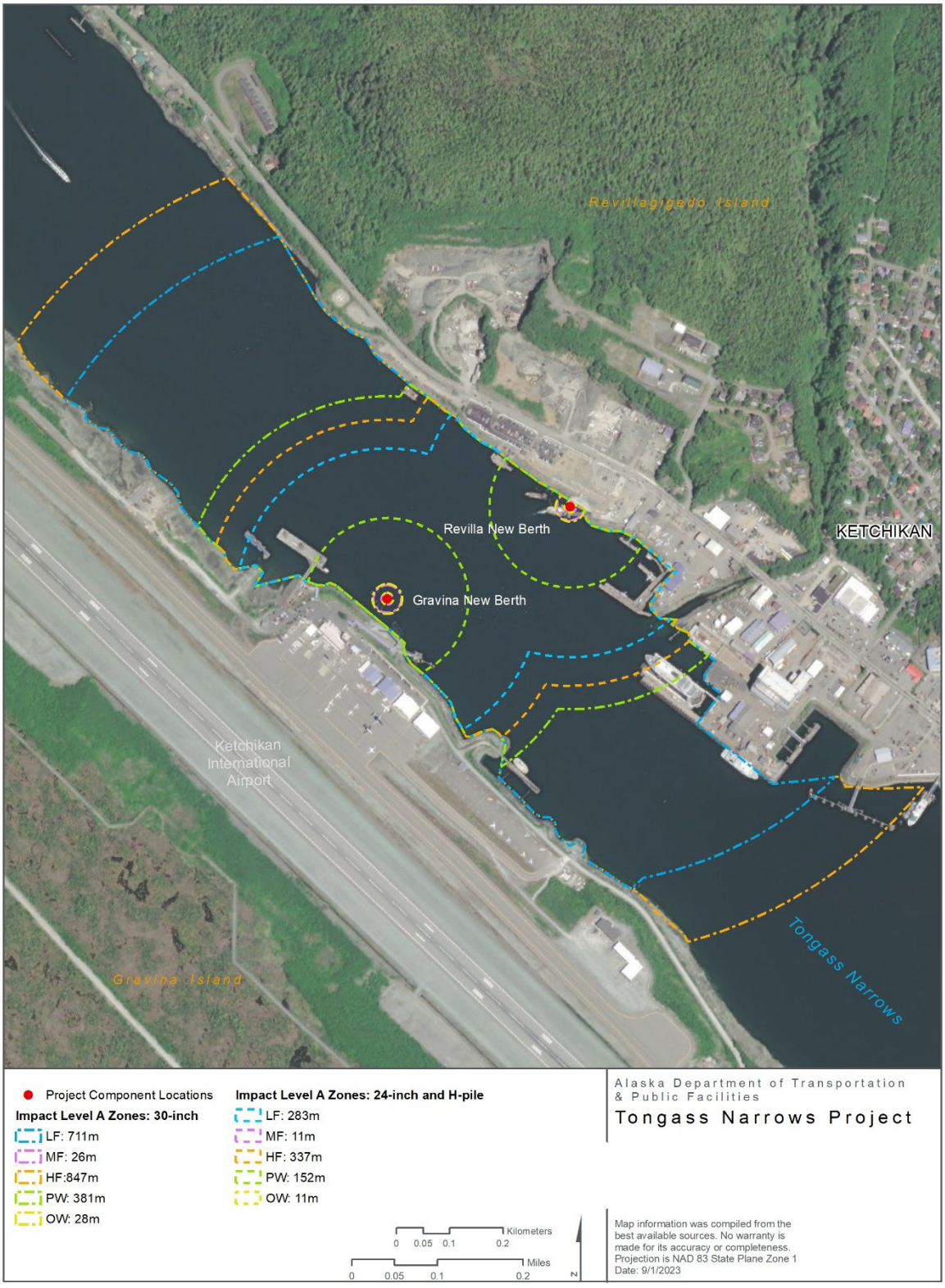

Figure 2-1. Largest Level A Zones during Impact Pile Installation at Representative Project Components

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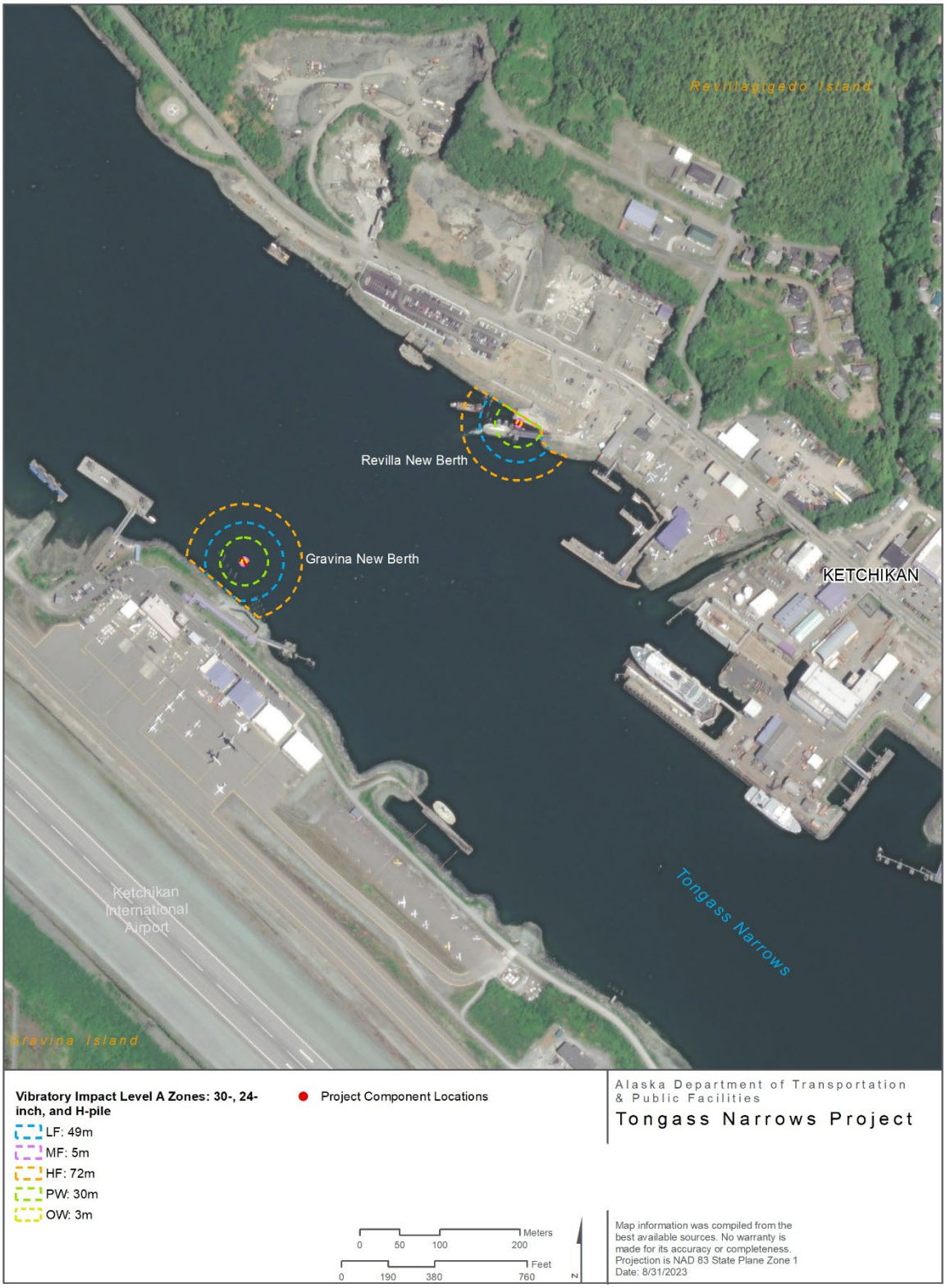

Figure 2-2. Largest Level A Zones during Vibratory Pile Installation and Removal at Representative Project Components

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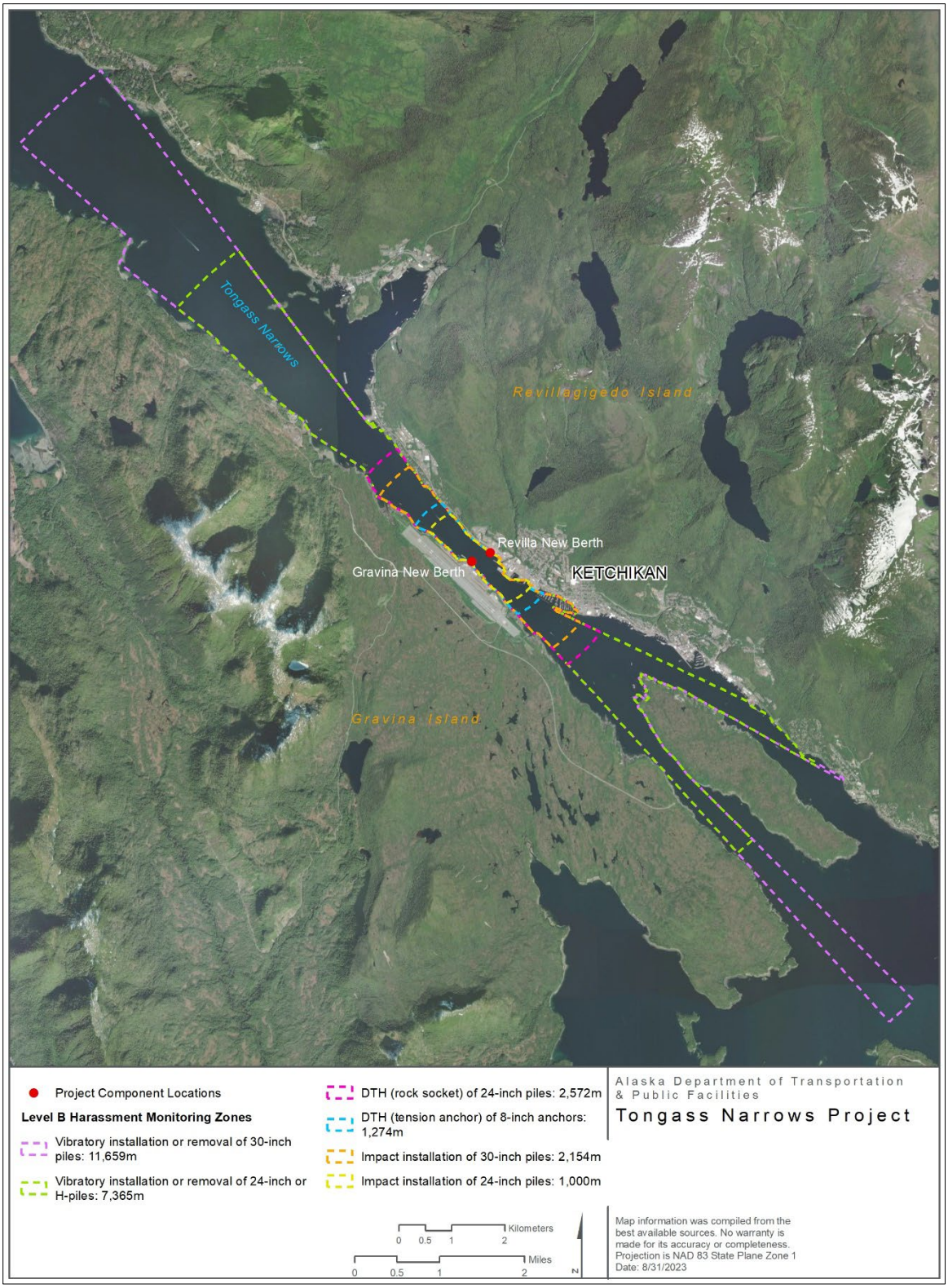

Figure 2-3. Level B Harassment Zones during Pile Installation and Removal at Representative Project Components

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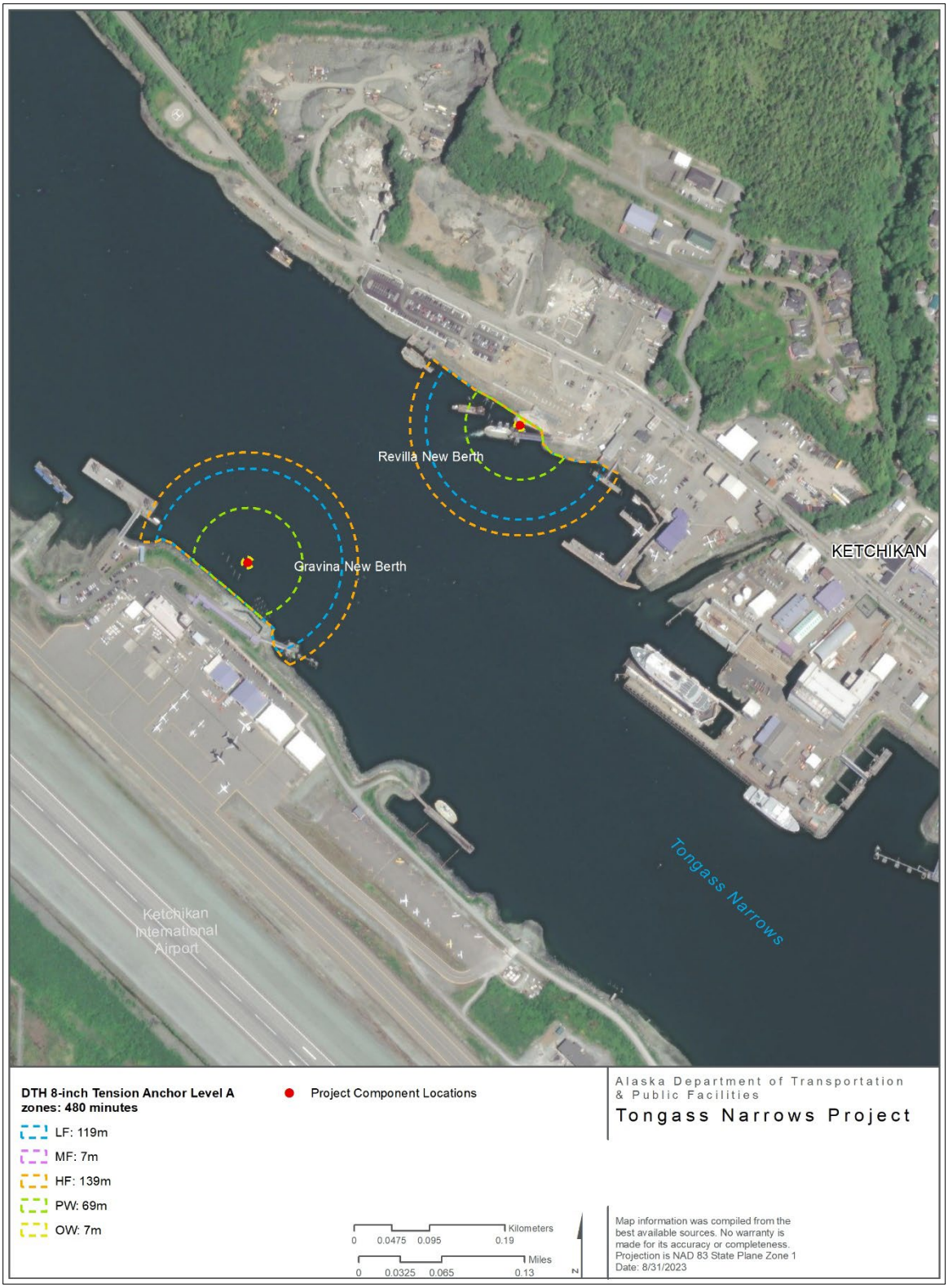

Figure 2-4. Largest Level A Harassment Zones during DTH Installation of 8-inch Tension Anchors for 480 Minutes at Representative Project Components

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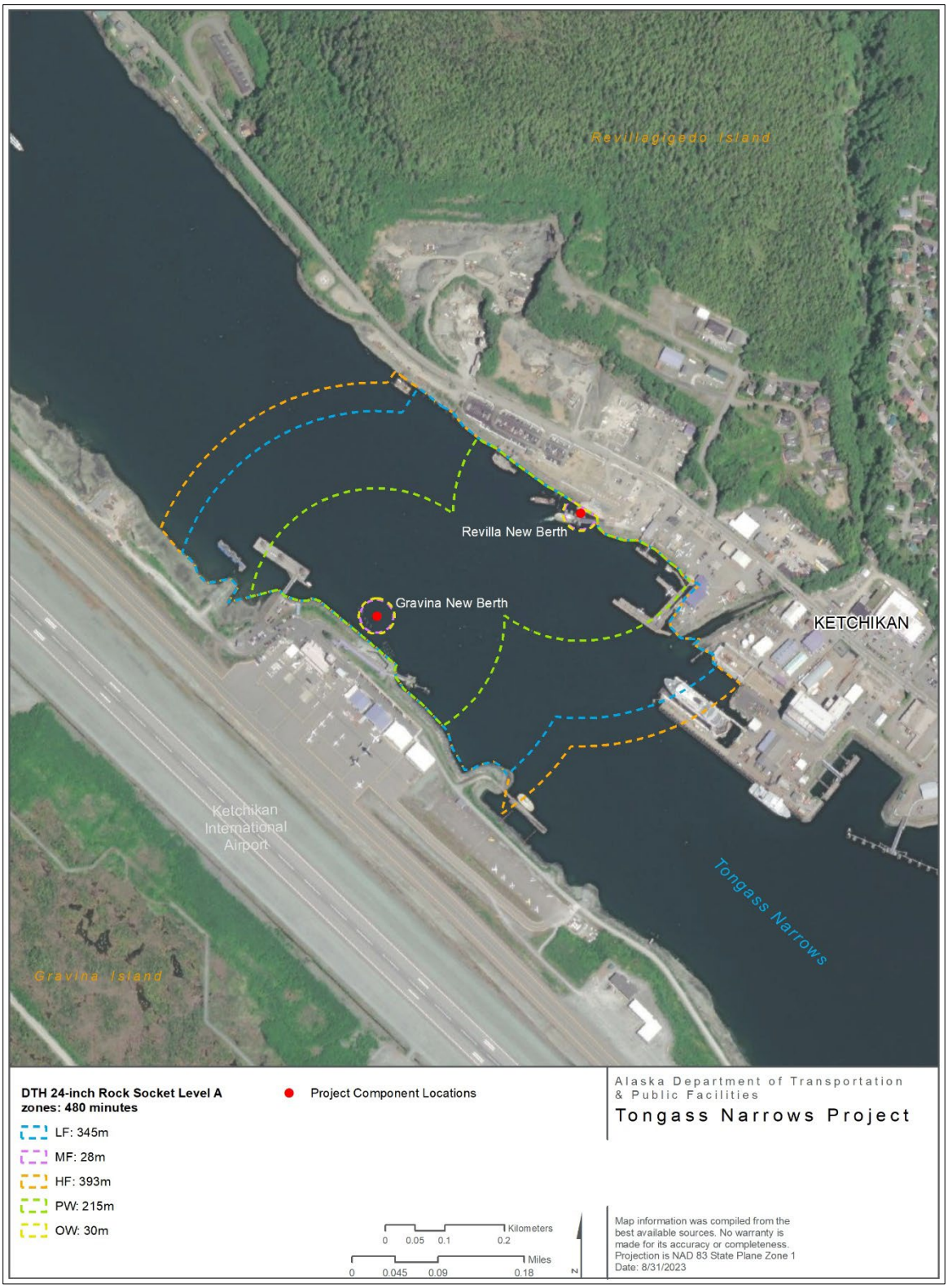

Figure 2-5. Largest Level A Harassment Zones during DTH Installation of 24-inch Rock Sockets for 480 Minutes at Representative Project Components

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2.2 Marine Mammal Monitoring

To minimize potential impacts of Project activities on marine mammals, MMOs will be present during all in-water pile installation and removal using impact, vibratory, and DTH methods. The MMOs' primary responsibilities will be to search for, monitor, document, and track marine mammals.

MMOs will have no other construction-related tasks or responsibilities while monitoring for marine mammals. MMOs will understand their roles and responsibilities before beginning observations. A clear authorization and communication system will be in place to ensure that MMOs and construction crew members understand their respective roles and responsibilities.

2.2.1 Positioning

A minimum of two MMOs during impact and DTH installation and a minimum of three MMOs during vibratory installation/removal will monitor the construction area and will be positioned at the best practicable vantage point(s). Locations from which MMOs will be able to monitor for marine mammals are readily available from publicly accessible areas along the Tongass Highway and Gravina Airport Access Road. Monitoring locations will be selected by the MMO Contractor during pre-construction, but will include the Totem Bight State Park location. MMOs will monitor for marine mammals entering the Level B harassment zones; the position(s) may vary based on construction activity and location of piles or equipment. At least one of the monitoring locations will have the following characteristics:

- An unobstructed view of the pile being driven and
- An unobstructed view of the Level A harassment zones.

This central position will be staffed by the lead MMO, who will monitor the shutdown zones and communicate with construction personnel about shutdowns and management of take. The MMO at this location will be able to see at least a 720-meter radius, which exceeds the largest Level A shutdown zone, around the construction site. Walking or otherwise moving around the general construction site may be helpful for monitoring the shutdown zones in their entirety. The other MMO(s) will watch for marine mammals entering and leaving Tongass Narrows and will alert the lead MMO of the number and species sighted so that no unexpected marine mammals will approach the construction site. This will avoid and minimize Level A take of all species.

2.2.2 Daily Monitoring Protocols

At the start of each day, the Contractor(s) will hold a briefing with the Lead MMO to outline the activities planned for that day. The MMOs will begin observations 30 minutes prior to the start of pile installation/removal and continue observations for 30 minutes following completion each day. Pile installation/removal may commence when MMOs have declared the shutdown zones clear of marine mammals for 30 minutes. In the event of a delay or shutdown resulting from marine mammals in the shutdown zones, their behavior must be monitored and documented until they leave of their own volition, at which point pile installation or removal may begin.

At least two MMOs during impact or DTH installation and at least three MMOs during vibratory installation or removal will be available to observe during rotating shifts of no more than 4 hours without a break and no more than 12 hours each day to prevent fatigue. While the 4-hour time limit is required by NMFS, pile driving is intermittent in nature, and it is expected that MMOs on watch will be able to take frequent breaks as needed while still maintaining sufficient coverage of the Project area.

Specific aspects and protocols of observations will include:

- If any marine mammal species not authorized for take is encountered during pile installation or removal and is likely to be exposed to Level B harassment, in-water pile installation or removal will be halted. If take occurs, contact the Project Engineer immediately so that the observation can be reported to NMFS Office of Protected Resources by the Department.
- When a marine mammal is observed, its location will be determined using tools to verify distance and heading (e.g., rangefinder, reticle binoculars, GPS, compass).
- The MMOs will record any authorized cetacean or pinniped present during monitoring and the harassment zone within which it is located, if applicable. The harassment zones are described in Table 2-1 and shown on Figure 2-1 through Figure 2-5.
- Ongoing in-water pile installation and removal may be continued during periods when conditions such as low light, high sea state, fog, ice, rain, glare, or other conditions prevent effective marine mammal monitoring of the entire Level B harassment zone. MMOs will continue to monitor the visible portion of the Level B harassment zone throughout the duration of pile installation and removal.
- If waters exceed a sea state that restricts the MMOs' abilities to make observations within the Level A harassment zones (e.g., heavy rain, excessive wind or fog), pile installation and removal will cease. Pile driving will not be re-initiated until the entire relevant Level A harassment zones are visible.
- If zones are unable to be monitored for a period of 30 minutes or more due to environmental conditions, MMO breaks, or other circumstances, the 30-minute observation period prior to pile installation or removal will need to be completed again.

2.3 Mitigation Measures for In-water Pile Installation and Removal

DOT&PF intends to implement the general monitoring approach that was analyzed in the Project BiOp and the *FR* Notice of Proposed IHA. DOT&PF also intends to adhere to the monitoring and mitigation measures as outlined in the final BiOp, Incidental Take Statement, and IHA. The complete list of required avoidance, minimization, and mitigation measures can be found in the Project IHA. Avoidance and minimization measures described here include soft starts, establishment of shutdown zones, and marine mammal monitoring. To minimize the effects of in-water pile installation and removal on marine mammals, the following measures will be observed:

- Pile installation, proofing, and removal will occur only during daylight hours, when visual monitoring of marine mammals can be conducted.
    - Daylight hours, for the purposes of monitoring, are defined as the time between civil dawn and civil dusk. Exact times for civil dawn and dusk for various locations can be found online.
- A 10-meter shutdown zone will be implemented for all species and all pile installation and removal methods to prevent direct contact and injury of marine mammals with construction equipment.
- Shutting down pile installation or removal when a marine mammal is approaching or observed within a defined shutdown zone will be used to avoid exposure.

- If a marine mammal authorized for Level B exposure is present in the Level B harassment zone, in-water pile installation and removal may continue, and a Level B exposure will be recorded. Pile installation may occur when these species are in the Level B harassment zone, whether they entered the Level B zone from the Level A zone (if relevant) or from outside the Project area.
- If Level A or Level B exposure for a species reaches the authorized limit, pile installation and removal will be stopped as individuals of this species approach the relevant zones to avoid additional exposure of this species.
    - The Project Engineer will be alerted immediately if Level A or Level B exposure for a species reaches 80 percent of the authorized limit.
- For those marine mammal species for which Level B exposure has not been requested, in-water pile installation and removal will shut down before they enter the Level B harassment zone to avoid unauthorized Level B exposure.
- If a marine mammal is entering or is observed within an established shutdown zone, pile installation and removal must be halted or delayed. Pile driving may not commence or resume until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone for 15 minutes (non-ESA species) or 30 minutes (humpback whales and fin whales) have passed without subsequent detections of the animal.
- For impact pile installation, the Contractor will provide an initial set of three strikes from the impact hammer at reduced energy, followed by a 30-second waiting period and then two subsequent three-strike sets. This soft start will be applied prior to the beginning of pile installation each day or after an impact hammer has been idle for more than 30 minutes. No vibratory soft start is required.
- If a marine mammal is present within the Level A harassment zone, ramping up will be delayed until the animal leaves the Level A harassment zone. Ramping up and pile installation or removal will begin only after the MMO has determined, through sighting, that the animal has moved outside the Level A harassment zone.
- If a marine mammal authorized for exposure is present in the Level B harassment zone, ramping up may begin, and a potential Level B exposure will be recorded. Ramping up may occur when these species are in the Level B harassment zone, whether they enter the Level B zone from the Level A zone or from outside the Project area.
- If a marine mammal is present in the Level B harassment zone, the Contractor may elect to delay ramping up to avoid a Level B exposure. To avoid a Level B exposure, ramping up will begin only after the MMO has determined, through sighting or if 15 minutes (non-ESA species) or 30 minutes (humpback whales and fin whales) has passed without a re-sighting, that the animal has moved outside the Level B harassment zone.
- No vibratory ramping up is required.
- If a marine mammal approaches within 10 meters of a Project vessel (e.g., barge, tugboat), the vessel shall reduce speed to the minimum level required to maintain safe steerage and working conditions until the marine mammal is at least 10 meters away from the vessel.
- The Level A harassment zones for each pile will be monitored and implemented according to pile size, type, duration of installation, installation method, and functional hearing group as analyzed in the project BiOp and *FR* Notice of Proposed IHA.

- The Level B harassment zone for each pile will be monitored and implemented according to pile size, type, and installation method as outlined in the BiOp and *FR* Notice of Proposed IHA.
- A minimum of two MMOs during impact or DTH installation and a minimum of three MMOs during vibratory installation/removal.
- For all pile driving, a minimum of one PSO must be assigned to the active pile driving or DTH location to monitor the shutdown zone, and as much of the Level A and Level B harassment zones as possible.

3 MARINE MAMMAL OBSERVER QUALIFICATIONS

All MMOs will undergo project-specific training in monitoring, data collection, and mitigation procedures specific to the Project. This training will also include communication protocols.

Marine mammal monitoring will be conducted by two or more MMOs who meet or exceed the minimum qualifications identified by NMFS in the final IHA. These include the following:

- MMOs will be independent observers (i.e., not construction personnel).
- One MMO will be designated as the lead MMO or monitoring coordinator. The lead MMO must have prior experience working as an observer.
- Other observers may substitute education (undergraduate degree in biological science or related field) or training for experience.
- MMOs must have:
    - Experience or training to conduct field observations and collect data according to assigned protocols.
    - Experience or training in the field identification of marine mammals, including the identification of behaviors.
    - Sufficient training, orientation, or experience with construction operations to provide for personal safety during observations.
    - Lead MMOs must have writing skills sufficient to prepare a report of observations, including, but not limited to:
        - The number, species, and behavior of marine mammals observed;
        - Dates and times when in-water pile installation and removal were conducted; and
        - Dates and times when in-water pile installation and removal were suspended to avoid potential harassment of marine mammals observed within the harassment zones
    - The ability to communicate orally, by radio, or in person with Project personnel to provide real-time information on marine mammals observed in the area.

All MMOs must be capable of spotting and identifying marine mammals and documenting applicable data during all types of weather, including rain, sleet, snow, and wind. At a minimum, all MMOs will have or meet the following qualifications:

- MMOs will be independent observers not engaged in construction activities.
- MMOs' visual acuity (correction is permissible) will be sufficient to allow detection and identification of marine mammals at the water's surface; use of binoculars may be necessary to correctly identify a sighting to species.
- MMOs will demonstrate ability to conduct field observations and collect data according to assigned protocols (this may include academic training and/or previous field experience).
- MMOs will have documented marine mammal monitoring experience or training, or an undergraduate degree in biological science or a related field. Project-specific training for

this Project will meet the training requirement if the MMO has experience identifying marine mammals to species.

- MMOs will have sufficient training, orientation, or experience with construction operations to provide for personal safety during observations.
- MMOs will have the ability to communicate orally, by radio or in person, with project personnel about marine mammals observed in the area.
- MMOs will have the ability to collect the required marine mammal observation data as detailed in Section 4.

A designated Lead MMO will always be on-site and will remain responsible for implementing the Monitoring Plan for in-water pile installation and removal for the Project.

The Lead MMO must have education and experience that demonstrate qualifications to serve as the lead, including the following minimum requirements:

- Education in wildlife observation techniques from a university, college, or other formal education program;
- Writing skills sufficient to prepare daily activity logs and monthly and final reports; and
- Previous professional marine mammal observation experience during construction.

Since the Project is already on-going, current MMOs on the Project will not need their curricula vitae (CVs) resubmitted to NMFS. Instead, a list of currently approved MMOs already on the Project who will work under this IHA will be submitted to NMFS. If new MMOs join the Project, their CVs will be submitted to NMFS for approval prior to placement on the Project. NMFS will review submitted MMO CVs and indicate approval as warranted. Approval must be granted by NMFS within 10 business days; if no notice is received from NMFS within 10 business days, it will be considered tacit approval.

4 DATA COLLECTION

4.1 Environmental Conditions and Construction Activity

MMOs will use the environmental conditions and construction activities log to document environmental conditions, types of construction activities, and other human activity in the area (Attachment 2). Environmental conditions will be recorded at the beginning and end of every monitoring period and at every half hour or as conditions change. Data collected will include MMO names, location of the observation station, time and date of the observation, weather conditions, air temperature, sea state, cloud cover, visibility, glare, tide, and ice coverage (if applicable).

MMOs will record the time that observations begin and end as well as the durations of shutdowns and delays. MMOs will document the reason(s) for stopping work, time of shutdown, and type of pile installation or other in-water work taking place. MMOs will document other, non-Project-related activities that could disturb marine mammals in the area, such as the presence of large and small vessels. Additionally, all communications between MMOs and the construction crew will be documented.

Either the construction contractor or DOT&PF inspectors will provide the final count of impact strikes for piles installed with an impact hammer, as well as durations of pile installation or removal to supplement data collected by the MMOs.

Data concerning environmental conditions, marine mammal sightings, and mitigation measures will be entered into a spreadsheet. Each data entry will be checked for quality assurance and quality control (QA/QC). Upon request, the data will be submitted to NMFS along with the final monitoring report.

4.2 Sightings

Each marine mammal observation will be documented on a paper or electronic Marine Mammal Sighting Form consisting of a data page/table and a schematic map of the location of the observed animal (Attachment 1). Sightings data will include start and end times of each sighting; species; species confidence; number of individuals; sex and age class, if possible; behavior and movement; distances from Project activities to the sighting; initial and final heading of the animal; type of in-water activity at the time of sighting; and if and when Project activities were stopped in response to the sighting (Table 4-1). MMOs will record whether no exposures occurred or a potential Level A and/or Level B exposure occurred, including the number of marine mammals and species potentially exposed. To the extent practicable, the MMOs will record behavioral observations that may make it possible to determine if the same or different individuals are exposed as a result of Project activities over the course of a single day. When marine mammals are sighted, MMOs should delegate responsibilities so that one or more MMOs continue to scan the water to identify other marine mammals that may enter the area while another MMO continues to monitor and track the first sighting.

Table 4-1. Data Attributes and Definitions

Data Attribute	Attribute Definition and Units Collected
Start and end times of monitoring period	Time that monitoring by MMOs/PSOs began and ended, without interruption
Environmental Conditions	
Weather conditions	Dominant weather conditions, collected every 30 minutes: sunny (S), partly cloudy (PC), light rain (LR), steady rain (R), fog (F), overcast (OC), light snow (LS), snow (SN)
Wind speed	In knots
Wind direction	From the north (N), northeast (NE), east (E), southeast (SE), south (S), southwest (SW), west (W), northwest (NW)
Wave height	Calm, ripples (up to 4 inches), small wavelets (up to 8 inches), large wavelets (up to 2 feet), small waves (up to 3 feet), moderate waves (up to 6 feet), large waves (up to 9 feet)
Cloud cover	Amount of cloud cover (0–100%)
Visibility	Maximum distance at which a marine mammal could be sighted
Glare	Amount of water obstructed by glare (0–100%) and direction of glare (from south, north, or another direction)
Tide	Predicted hourly data information gathered from National Oceanic and Atmospheric Administration will be available on-site
Construction and Communication Activities	
Time of event	Time that construction activities and all communications between MMOs/PSOs and construction crews take place
Type of construction activity	Type of construction activity occurring, including ramp-up, startup, shutdown, and type of pile installation technique
Communication	Information communicated between MMOs/PSOs and construction crew
Marine Mammal Sighting Data	
Time of initial and last sightings	Time the animals are initially and last sighted
Species	Species (use unidentified mysticete, odontocete, cetacean, or pinniped if unknown); sex and age class, if possible
Species Confidence	Percent confidence in species identification (0–100%, 100% being absolutely certain)
Number of individuals	Minimum and maximum number of animals counted; record the count the MMO believes to be the most accurate (i.e., best estimate)
Sex and age, if possible	Generally, numbers of females with pups or calves
Initial and final heading	Direction animals are headed when initially and last sighted
In-water construction activities at time of sighting	Types of construction activities occurring at time of sighting and mitigation measures implemented
Distance from marine mammal to construction activities	Distance from marine mammal to construction activities when initially sighted, at closest approach to activities, and at final sighting (include location relative to monitoring and shutdown zones)
Commercial activities at time of sighting	Description of nearby commercial or anthropogenic activities occurring at time of sighting not associated with the Project
Behavior	Behaviors observed; indicate primary and secondary behaviors
Change in behavior	Changes in behavior; indicate and describe
Group cohesion	Orientation of animals within the group and the distance between animals

Notes: MMO = Marine Mammal Observer; PSO = Protected Species Observer.

4.3 Equipment

The following equipment and information will be required on-site for marine mammal monitoring:

- Portable radios for the MMOs to communicate with the Construction Contractor point of contact and other MMOs, or cellular phones and phone numbers for all MMOs and the Construction Contractor point of contact
- Daily tide tables
- Hand-held binoculars (7X or better) with built-in rangefinder or reticles
- Rangefinder
- Paper data forms or electronic data collection system (e.g., Toughbook or iPad) and backup paper forms
- Large (11- by 17-inch or similar) waterproof maps of the Project area and monitoring zones

4.4 Quality Assurance and Quality Control

Electronic data collection or paper data sheets will be QA/QC'd by the Lead MMO at the end of each monitoring day. No cells or information will be left blank. If information is not available or not applicable, the field will be populated with an "NA" or dash. The data will also be QA/QC'd once it is entered electronically.

4.5 Marine Mammal Monitoring Data Management

All marine mammal monitoring data will be entered into and stored in an electronic database or spreadsheet. The database or spreadsheet will be set up and structured for easy access and management of data and will be used to develop the marine mammal monitoring report. An electronic copy of the data spreadsheet will be available to NMFS upon request.

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5 REPORTING

5.1 Reporting

During construction, MMOs/PSOs will maintain daily activity logs that include the following information:

- Time that each monitoring period begins and ends
- Prevailing environmental conditions
- In-water construction activities occurring during each monitoring period (including number, type, and size of piles)
- Indication of whether marine mammals were sighted

Within 90 days of the completion of the project, DOT&PF will submit to the NMFS Office of Protected Resources (Silver Spring, MD) a draft final report of all monitoring conducted during the Project. Within 30 days of receiving comments from NMFS on the draft final report, DOT&PF will submit the final report to NMFS.

To the extent practicable, the MMOs will record behavioral observations that may make it possible to determine if the same or different individuals are being "taken" (or exposed) as a result of Project activities over the course of a day.

The monitoring reports will include a description of the monitoring protocol, a summary of the data recorded during monitoring, and an estimate of the number of marine mammals that may have been harassed, including the total number extrapolated from observed animals across the entirety of relevant monitoring zones. The data will include:

- Dates and times of monitoring and total number of days and hours of observations
- Weather and water conditions during each monitoring period
- Locations of observation stations used and dates/times when each location was used
- Numbers, species, group sizes, dates/times, and locations of marine mammals observed
- Sex and age classes of marine mammals observed, if possible
- Distances to marine mammal sightings relative to construction location(s), including closest approach to construction activities
- Details of all recorded marine mammal exposures, including the species, number of individuals, date/time, location, observer, and type of pile installation/removal occurring at the time of exposure
- Descriptions of observable marine mammal behavior in the Level A and Level B harassment zones
- Times of shutdown and delay events, including when work was stopped and resumed due to the presence of marine mammals or other reasons
- Descriptions of the type and duration of any pile installation work occurring and soft start procedures used while marine mammals were being observed
- Description of all non-Project-related human activities in the area

- Details of all shutdown and delay events and whether they were due to the presence of marine mammals, inability to clear the hazard area due to low visibility, or other reasons
- Tables, text, and maps to clarify observations

5.2 Notification of Injured or Dead Marine Mammals

In the unanticipated event that the specified activity (pile installation and removal) clearly causes the exposure of a marine mammal for which authorization has not been granted, such as a serious injury or mortality, DOT&PF will immediately cease pile installation and removal and report the incident to the NMFS Office of Protected Resources (301-427-8401), the NMFS Alaska Region Protected Resources Division (907-271-5006), and the NMFS Alaska Regional Stranding Coordinator (907-271-3448) or hotline (1-877-925-7773).

The report will include the following information:

- Time, date, and location (latitude/longitude) of the incident
- Detailed description of the incident
- Description of vessel involved (if applicable), including the name, type of vessel, and vessel speed before and during the incident
- Status of all sound source use in the 24 hours preceding the incident
- Environmental conditions (wind speed and direction, wave height, cloud cover, and visibility)
- Description of marine mammal observations in the 24 hours preceding the incident
- Species identification, description, condition, and fate of animal(s) involved
- Photographs or video footage of animal(s) or equipment (if available)

Pile installation and removal shall not resume until NMFS is able to review the circumstances of the prohibited exposure. NMFS shall work with DOT&PF to determine what is necessary to minimize the likelihood of further prohibited exposures and ensure MMPA compliance. DOT&PF may not resume pile installation and removal until notified by NMFS' MMPA program via letter, email, or telephone.

In the event that DOT&PF discovers an injured or dead marine mammal and the Lead MMO determines that the cause of the injury or death is unrelated to the Project, DOT&PF will immediately report the incident to the Alaska Regional Stranding hotline (877-925-7773).

The report will include any applicable information listed above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with DOT&PF to determine whether modifications to the activities are appropriate.

6 LITERATURE CITED

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, 2018 Revision. U.S. Department of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59.

NMFS. 2023a. Incidental Harassment Authorization – Tongass Narrows Project (2023). U.S. Department of Commerce, National Oceanic and Atmospheric Administration, NMFS, Silver Spring, MD. September 11, 2023.

NMFS. 2023b. Endangered Species Act Section 7(a)(2) Biological Opinion for Construction of the Tongass Narrows Project (Gravina Access). NMFS Consultation Number: AKRO-2023-00339. August 30, 2023.

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ATTACHMENT 1: EXAMPLE DATA FORMS

Marine Mammal Sighting Form

Project: **Station:** **Sighting #:**
(1st sighting of the day is Sighting#: 1)

Date: **Observer(s):**

Time		**Species** *(circle)*	**Number of Mammals**	**Number of Animals in Each Class**	**Distance** *(animal to activity)*
Initial Sighting Time		Minke Whale Fin Whale Humpback Whale Gray Whale Pacific White-sided Dolphin Killer Whale Harbor Porpoise Dall's Porpoise Steller Sea Lion Northern Elephant Seal other:	Min Count:	Adults: Juveniles: Calves/Pups: Unknown Age:	Initial Distance
Final Sighting Time			Max Count:	Male: Female: Unknown Sex:	Closest Distance
Time Entered Harassment Zone			Best Count:	**Species Confidence %:**	Final Distance
Time Exited Harassment Zone					Group Cohesion #

Behavior of Marine Mammal (circle all observed behaviors; place a 1 next to primary, 2 next to secondary activity):

Travel Mill Dead
Disoriented Fight Play Dive
Slap Spyhop Unknown
Feeding Observed Feeding Suspected Swimming Toward Site Swimming Away from Site

In-Water Work (animals outside Harassment Zone)? Y or N In-Water Work (animals inside Harassment Zone)? Y or N

Project Activities (circle, one bold option):

SHUT DOWN or **DELAYED** from _____ to _____ (time)

NOT SHUT DOWN, *EXPLANATION REQUIRED*:

Additional Information:

Draw locations on hardcopy map

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Daily Environmental Conditions, Construction, and Communication Activity Log

Page _____ of _____

Project:_____ Location:_____ Observer(s):_____ Date: _____

Environmental Conditions (Recorded every 30 minutes or as conditions change)									Construction and Communication Activities *(include all start up and shut-down activities and all communication to construction crew)*		
Time	Weather Conditions	Wind Speed	Wind Direction	Beaufort Sea State	Glare (%)	Visibility (m)	Cloud Cover (%)	Comments	Time	Type of Construction Activity *(Ramp up, Startup, shutdown, type of pile driving)*	Communication/Comments

Weather Conditions: (S) Sunny, (PC) Partly Cloudy, (L) Light Rain, (R) Steady Rain, (F) Fog, (OC)Overcast, (LS) Light Snow, (SN) Snow
Beaufort Scale: (0) Calm (1) ripples- up to 4 in (2) small wavelets- up to 8 in (3) large wavelets- up to 2 ft, (4) small waves- up to 3 ft (5) moderate waves- up to 6 ft (6) large waves- up to 9 ft