
Annual Marine Monitoring Report Parallel Thimble Shoal Tunnel Project Virginia Beach, Virginia

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ACRONYMS AND ABBREVIATIONS

CTJV	Chesapeake Tunnel Joint Venture
DTH	Down the Hole
GPS	Global Positioning System
IHA	Incidental Harassment Authorization
MHW	Mean High Water
MMMP	Marine Mammal Monitoring Plan
MMO	Marine Mammal Observer
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
PTS	Permanent Threshold Shift
PTST	Parallel Thimble Shoal Tunnel
SOE	Support of Excavation
TBM	Tunnel Boring Machine

1. EXECUTIVE SUMMARY

Under the Incidental Harassment Authorization (IHA), issued by NOAA on March 10, 2020, a total of 76 in-water 36” steel pipe piles and 60 42” steel casing were installed/ removed on the project. This work was done using a Down The Hole (DTH) hammer, traditional impact hammering and vibratory hammer extraction.

Construction began on March 20th and concluded on October 2nd, of which 64 days were spent driving pile. During this period, Marine Mammal Observers (MMOs) were onsite 108 days to observe both upland and in-water pile installation. There were a total of 100 marine mammals observed, all being bottlenose dolphins. Of these days, no Level A or Level B takes occurred.

Due to construction delays related to weather and unforeseen geotechnical conditions, the Chesapeake Tunnel Joint Venture (CTJV) will be unable to complete all of the planned work allowed in the 2020 IHA at the Parallel Thimble Shoals Tunnel Project (PTST) before the expiration date of March 10, 2021 and, therefore, is requesting a Renewal IHA to authorize takes of marine mammals for the subset of the initially planned work that was not completed. The work would be identical to a subset of the activities analyzed in the 2019 IHA application. Specifically, the location, timing, and nature of the activities, including the types of equipment planned for use, are identical to those approved in the 2020 authorized IHA.

2. INTRODUCTION

The CTJV's PTST project consists of the construction of a two-lane parallel tunnel to the west of the existing Thimble Shoal Tunnel, connecting Portal Island Numbers (Nos.) 1 and 2. Upon completion, the new tunnel will carry two lanes of southbound traffic and the existing tunnel will remain in operation and carry two lanes of northbound traffic. The 6,525 linear feet (ft.) of new tunnel will be constructed using a Tunnel Boring Machine (TBM), with 5,356 linear ft. located below Mean High Water (MHW).

Pile driving activities for the PTST Project have the potential to cause sound levels that exceed Level A and Level B acoustic harassment thresholds for marine mammals, as defined by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NOAA Fisheries) Office of Protected Resources (NOAA Fisheries 2016h) and therefore required the need for an IHA.

This project is occurring in areas of the lower Chesapeake Bay that overlap with the range of several marine mammal species. The granted 2020 IHA allowed takes for five species of marine mammals: harbor seals (*Phoca vitulina*), gray seals (*Halichoerus grypus*), humpback whale (*Megaptera novaeangliae*), harbor porpoises (*Phocoena phocoena*), and bottlenose dolphin (*Tursiops spp.*). These takes are associated with pile driving activities associated with the PTST Project Area.

3. MONITORING AND METHIDODOLOGY

3.1 MONITORING PROCEDURES

The PTST Marine Mammal Monitoring Plan (MMMP)(Appendix A) was updated to reflect updates in the March 10, 2020 authorized IHA. This plan served as the protocol for monitoring marine mammals during pile installation activities in the Project Area. The goal of the MMMP was to prevent unauthorized Level A or Level B takes and to minimize Level B harassment using clearly defined methods for monitoring and shutdown procedures during construction.

3.2 OBSERVER QUALIFICATIONS

The CTJV employed NOAA Fisheries-approved MMOs from REMSA Incorporated, to monitor Level A Shutdown Zones and Level B ZOI. These individuals met the qualifications and experience outlined in Section 5 of the March 10, 2020 Issued IHA.

Days where pile installation activities occurred, observers were on site and observation records were completed.

The following data was included in the observation records:

- Dates and times (begin and end) of all marine mammal monitoring.
- Construction activities occurring during each daily observation period, including how many and what type of piles were driven or removed and by what method (*i.e.*, impact or vibratory).
- Weather parameters and water conditions during each monitoring period (*e.g.*, wind speed, percent cover, visibility, sea state).
- The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting.
- Age and sex class, if possible, of all marine mammals observed.
- MMO locations during marine mammal monitoring.
- Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).
- Description of any marine mammal behavior patterns during observation, including direction of travel.
- Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).
- Detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any.
- Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.
- Level A and Level B harassment exposures recorded by PSOs must be extrapolated based upon the number of observed takes and the percentage of respective harassment zones that are not visible.
- Marine mammal observational datasheets or raw data.

The MMOs followed the approved ZOI for each activity based on guidance from the March 10, 2020 issued IHA.

4. OBSERVATIONS AND FINDINGS

4.1 SCHEDULE OF ACTIVITIES

The PTST Project construction activities under the current 2020 IHA did not begin until March 20th 2020 and were concluded on October 2nd, 2020. During this construction window, 76- 36” steel piles were installed.

In-water activities that occurred during 2020 IHA Construction Window:

Construction of a temporary dock on the west side of Portal Island No. 1. The installation of the 58- 36” diameter hollow steel pipe piles were completed by initially driving a 42” steel casing with a DTH hammer through the armor stone, then using an impact hammer to install the 36” piles. A bubble curtain was used during the impact driving of each 36” pile in water deeper than 10 feet.

Construction of the Portal Island No. 1 temporary trestle, composed of 18- 36” diameter hollow steel piles on the west side of the island. The installation of the piles involved using the DTH to get the pile through the initial armor stone and finishing with a traditional impact hammer. A bubble curtain was used during the impact driving of each pile in water deeper than 10 feet.

Table 1, outlines the progression of pile installation throughout the 2020 IHA Construction Window.

Table 1- Actual Pile Installation Schedule Under 2020 Issued IHA

	HALF DAY BEFORE HOLIDAY	HOLIDAY DID NOT WORK	HIGH WINDS/INCLEMENT WEATHER COULD NOT WORK	PRODUCTION WORK	UNFORESEEN CONDITIONS	Drive/Dri ll 42" Ø Casing	Drive 36" Ø Pipe Pile (Set-Up Bubble Curtain)	Rmv/Insp ect 42" Ø Casing	Total Completely Driven Pipe Piles	Actual Weekly Qty	Actual Driving Day (Below MHW)
	BERMINGHAMMER/MINCO N RELATED WORK	SAFETY/TRAINING RELATED ITEMS	Water Treatment Plant (WTP) or Muck Pit Work	BREAK IN IHA PERMIT COULDN'T WORK IN WATER		0.00 EA	0.00 EA	0.00 EA	0.000 EA		
% of Total =>	Description / Pipe Pile #					35%	31.5%	10%	100%	Actual Cumulative Qty	
Date	Actual					Actual Daily Qty Break Down					
3/7/2020	Mobilize Set Up A-0 (Dock Extension)								0.100 EA	6.300 EA	0
3/8/2020									0.000 EA	6.300 EA	0.500 EA
3/9/2020	Set-Up for Casing COP1	Begin Leveling Armor Stone at COP1							0.100 EA	6.400 EA	0
3/10/2020	Finish Leveling Armor Stone at COP1	Drive Casing COP1	Splash Wall settlement began to impact temp roadway.			1.00EA			0.350 EA	6.750 EA	0
3/11/2020	Begin Splash Wall Stabilization	Begin Set-Up for Casing COP1							0.025 EA	6.775 EA	0
3/12/2020	Finish Splash Wall Stabilization	Finish Set-Up for Casing COP1							0.075 EA	6.850 EA	0
3/13/2020	Drive Casing COP2					1.00EA			0.350 EA	7.200 EA	0
3/14/2020	Build C6P7-8 Casing Template								0.000 EA	7.200 EA	0
3/15/2020									0.000 EA	7.200 EA	0.900 EA
3/16/2020	Build C6P7-8 Casing Template								0.100 EA	7.300 EA	0
3/17/2020	Attempted to Drive C6P7 Casing, but the crane power pack bracket impeded roadway.								0.000 EA	7.300 EA	0
3/18/2020	Installed 19 Mats onto B1 Spans 4 & 5, relocate LB 298 to B1 Span 5, prepare 1300 to drill								0.000 EA	7.300 EA	0
3/19/2020	Begin Drilling Casing C6P7								0.050 EA	7.350 EA	0
3/20/2020	Finished Drilling Casing C6P7	Drilled Holes in Timber Deck for Survey Point				1.00EA			0.350 EA	7.700 EA	1
3/21/2020	Set-Up for Casing C6P8								0.150 EA	7.850 EA	0
3/22/2020									0.000 EA	7.850 EA	0.650 EA
3/23/2020	Drilled Casing C6P8					1.00EA			0.350 EA	8.200 EA	1
3/24/2020	Cleaned up work area and prep for H-Piles Extraction (for Night Shift)	Began Main Dock Template Assembly							0.050 EA	8.250 EA	0
3/25/2020	Worked on Template Assembly	High Winds/Rain Stopped Work @11:30AM							0.050 EA	8.300 EA	0
3/26/2020	Continued Template Assembly								0.100 EA	8.400 EA	0
3/27/2020	Completed Template Assembly								0.100 EA	8.500 EA	0
3/28/2020	Installed Template @ C5P7-8, C4P7-8								0.100 EA	8.600 EA	0
3/29/2020	Drilled Casing C5P7					1.00EA			0.400 EA	9.000 EA	1.150 EA
3/30/2020	Drilled Casings C4P7 & C4P8	Unload/Store/Mark 98" Pipe Piles (4 EA)				2.00EA			0.800 EA	9.800 EA	1
3/31/2020	Attempted to thread casing on to drill but got stuck at splice. Removed casing, brought								0.000 EA	9.800 EA	0
4/1/2020	Begin Drilling Casing C5P8								0.050 EA	9.850 EA	0
4/2/2020	Finished Drilling Casing C5P8					1.00EA			0.350 EA	10.200 EA	1
4/3/2020	Begin Switch from CAS to D-80	Probe Casings C6P7-P8, C5P7-P8, & C4P7-P8							0.210 EA	10.410 EA	0
4/4/2020	Finish Switch from CAS to D-80	Drive C6P7 Pile					1.00 EA		0.315 EA	10.725 EA	1
4/5/2020									0.000 EA	10.725 EA	1.725 EA
4/6/2020	Drive C6P8 & C5P7 Piles	Cut C6P7 to Top of Casing			NS: Muck Out C5P8 Casing		2.00 EA		0.668 EA	11.393 EA	1
4/7/2020	Drive C5P8 & C4P8 Piles	Cut C6P8 & C5P7 to Top of Casing			NS: Muck Out C4P7 Casing		2.00 EA		0.705 EA	12.098 EA	1
4/8/2020	Drive C4P7 Pile	Cut C4P7, C4P8, & C5P8 to Top of Casing		NS: Remove C4P7- P8, C5P7-P8, & C6P7-P8 Casings	NS: Muck Out COP1, COP2 Casings		1.00 EA	6.00 EA	1.028 EA	13.125 EA	1
4/9/2020	HIGH WINDS ALL DAY	Cut C4P7, C4P8, C5P7, & C5P8 to Grade	Unload/Store/Mark 98" Pipe Piles (2 EA)	NS: Muck Out COP1, COP2 Casings	NS: Begin Moving Dock Template to Bents 2 & 3				0.120 EA	13.245 EA	0
4/10/2020	HIGH WINDS ALL DAY	Drive COP1 & COP2 Piles					2.00 EA		0.630 EA	13.875 EA	1
4/11/2020	CREW HAD WEEKEND OFF								0.000 EA	13.875 EA	0
4/12/2020									0.000 EA	13.875 EA	3.150 EA
4/13/2020	HIGH WINDS & RAIN ALL DAY								0.000 EA	13.875 EA	0
4/14/2020	Installed Template @ C3P6-7, C2P4			NS: Switch from D- 80 to CAS					0.350 EA	14.225 EA	0
4/15/2020	High Winds/Rain Stopped Work 6:30AM to 11:30AM	Drilled Casings C3P6 & C3P7		NS: Cut C6P7 & C6P8 Piles to Grade	NS: Muck Out C3P6, C3P7 Casings Test Trash Pump		2.00EA		0.775 EA	15.000 EA	1
4/16/2020	Drilled Casing C2P4	Begin Drilling Casing C1P4	Unload/Store/Mark 98" Pipe Piles (2 EA)	NS: Continued Drilling Casing C1P4	NS: Cut COP1 & COP2 to Top of Casing		1.00EA		0.575 EA	15.575 EA	1
4/17/2020	Finished Drilling Casing C1P4	Begin Switch from CAS to D-80	NS: Finish Switch from CAS to D-80	NS: Muck Out C2P4, C1P4 Casings	NS: Probe C3P6, C3P7, C2P4, & C1P4		1.00EA		0.540 EA	16.115 EA	1
4/18/2020	Attempted to Drive PDA Piles, but Survey Left due to Heavy Rain								0.000 EA	16.115 EA	0

4/19/2020									0.000 EA	16.115 EA	2.240 EA	0
4/20/2020	Drive C3P6, C3P7, C2P4, & C1P4 Piles	NS: Cut C3P6, C3P7, & C2P4 to Top of Casing	NS: Rmv C3P6, C3P7, & C2P4 Casings	NS: Began Relocating Materials/Eqpt. for Crane Switch		4.00 EA	3.00 EA	1.673 EA	17.788 EA			1
4/21/2020	Cut C3P6, C3P7, & C2P4 to Grade	Swap 298 & 1300 Crane Positions	NS: Cut C1P4 to Top of Casing	NS: Rmv C1P4, C0P1, & C0P2 Casings			3.00 EA	0.375 EA	18.163 EA			0
4/22/2020	Switch from D-80 to CAS	Rmv Template from B1-Bents 2/3 Prep Template for B2-Bents 6/7	Unload/Store/Mark 98" Pipe Piles (2 EA)	NS: Installed Template @ C6P9-10, C7P9-10	NS: Cut C1P4 & C0P1 Piles to Grade			0.425 EA	18.588 EA			0
4/23/2020	Drilled Casing C6P9				NS: Cut C0P2 Pile to Grade	1.00 EA		0.413 EA	19.000 EA			1
4/24/2020	Drilled Casing C7P9	Begin Drilling Casing C7P10				1.00 EA		0.450 EA	19.450 EA			1
4/25/2020	Continued Drilling Casing C7P10							0.000 EA	19.450 EA			0
4/26/2020								0.000 EA	19.450 EA	3.335 EA		0
4/27/2020	Finished Drilling Casing C7P10					1.00 EA		0.350 EA	19.800 EA			1
4/28/2020	Had to Change Out Pilot Bit							0.000 EA	19.800 EA			0
4/29/2020	Begin Drilling Casing C6P10							0.050 EA	19.850 EA			0
4/30/2020	Finished Drilling Casing C6P10					1.00 EA		0.350 EA	20.200 EA			1
5/1/2020	Issues removing DTH Hammer from Casing							0.000 EA	20.200 EA			0
5/2/2020	Install Template Extension for C7P11, C7P12							0.200 EA	20.400 EA			0
5/3/2020								0.000 EA	20.400 EA	0.950 EA		0
5/4/2020	Drilled Casing C7P11					1.00 EA		0.400 EA	20.800 EA			1
5/5/2020	Drilled Casing C7P12					1.00 EA		0.400 EA	21.200 EA			1
5/6/2020	Drilled Casing C6P11	Install Template Extension for C6P11, C6P12				1.00 EA		0.600 EA	21.800 EA			1
5/7/2020	Drilled Casing C6P12	Begin Switch from CAS to D-80	NS: Finish Switch from CAS to D-80	Row C1 C6-C7 casings not probed due to min. rock during drilling.	NS: Muck Out C6P12 Casing	1.00 EA		0.540 EA	22.340 EA			1
5/8/2020	Drove Pile C6P12				NS: Muck Out C6P10, C6P11, C7P12 Casings		1.00 EA	0.315 EA	22.655 EA			0
5/9/2020	DID NOT WORK DUE TO 60 HOURS WEEKLY MAN HOUR LIMIT							0.000 EA	22.655 EA			0
5/10/2020								0.000 EA	22.655 EA	2.255 EA		0
5/11/2020	Drive C6P10, C6P11, & C7P12 Piles	Place 2nd Layer of Timber Mats Row B1 Bay 3	NS: Cut C6P11, C6P12, & C7P12 to Top of Casing	Row B2 C6-C7 casings not probed due to min. rock during drilling.	NS: Muck Out C6P9, C7P9-P11 Casings		3.00 EA	1.198 EA	23.853 EA			1
5/12/2020	Drive C6P9, C7P9, C7P10, & C7P11 Piles	Cut C6P10 Pile to Grade (Unload 2 EA 36"Ø x 98' Piles)	NS: Cut C6P10, C7P9, C7P10, & C7P11 to Top of Casing	NS: Rmv C6P11, C6P12, & C7P12 Casings	NS: Weld Extension to C6P10 Casing for Extraction		4.00 EA	3.00 EA	1.760 EA	25.613 EA		1
5/13/2020	Begin Switch from D-80 to CAS	Rmv C7P11 Casing	Cut C6P11, C6P12, C7P11, & C7P12 Piles to Grade	NS: Rmv Template Extension from Bents 6-7			1.00 EA	0.150 EA	25.763 EA			0
5/14/2020	Rmv C6P9, C6P10, C7P9, & C7P10 Casings	Finish Switch from D-80 to CAS	Cut C6P9, C7P9, & C7P10 Piles to Grade	NS: Installed Template @ C4P9-10, C5P9-10			4.00 EA	0.838 EA	26.600 EA			0
5/15/2020	Drilled Casings C4P10 & C5P10	Need to Change Out Pilot Bit	Install Template Extension for C4P11, C4P12, C5P11, & C5P12			2.00 EA		1.200 EA	27.800 EA			1
5/16/2020	DID NOT WORK DUE TO 60 HOURS WEEKLY MAN HOUR LIMIT							0.000 EA	27.800 EA			0
5/17/2020								0.000 EA	27.800 EA	5.145 EA		0
5/18/2020	Waiting to Receive New Pilot Bit	Place 2nd Layer of Timber Mats Row B1 Bay 2	High Winds/Rain Stopped Work @2:30PM					0.000 EA	27.800 EA			0
5/19/2020	Change Out Pilot Bit	HIGH WINDS & RAIN ALL DAY	Unload 2 EA 36"Ø x 98' Piles	NS: High Winds/Rain Stopped Work @8:30PM				0.000 EA	27.800 EA			0
5/20/2020	High Winds/Rain Stopped Work @9:30AM		NS: Assemble CAS					0.000 EA	27.800 EA			0
5/21/2020	Welded Holes on DTH Hammer	Drill Broke while threading DTH into Casing C5P9 Dock Work On Hold Until Replacement Arrives	NS: Load Out Drill to Warehouse					0.000 EA	27.800 EA			0
5/22/2020	Drove 3 EA Sheet Piles @ NE End of Muck Pit							0.000 EA	27.800 EA			0
5/23/2020	Drove 1 EA Sheet Piles @ NE End of Muck Pit	Thread Omega Interlock onto Sheet Pile North of "L" King Piles						0.000 EA	27.800 EA			0
5/24/2020								0.000 EA	27.800 EA	0.000 EA		0
5/25/2020	MEMORIAL DAY - DID NOT WORK							0.000 EA	27.800 EA			0
5/26/2020	Drove 7 EA Sheet Piles @ NE End of Muck Pit							0.000 EA	27.800 EA			0
5/27/2020	Drove 16 EA Sheet Piles @ Muck Pit							0.000 EA	27.800 EA			0
5/28/2020	Tried to Drive 1 EA Sheet Pile Using D-19 Impact Hammer @ Muck Pit							0.000 EA	27.800 EA			0

5/29/2020	Drove 7 EA Sheet Piles (Initial) @ Muck Pit	Unload Refurbished Drill / Attached Drill to VTL	NS: Relocate Dock Crew Box, Materials, & Equipment from the North End of the Dock to the South End in Preparation to Relocate 5 EA Air					0.000 EA	27.800 EA		0
5/30/2020	Drove 2 EA Sheet Piles (Initial) @ Muck Pit	Drove 9 EA Sheet Piles to Grade @ Muck Pit	Tested Drill / Install Drill Stem / Install DTH Hammer	NS: Relocate 5 EA Air Compressors from the Island to the Dock to Clear Space for				0.000 EA	27.800 EA		0
5/31/2020				↓				0.000 EA	27.800 EA	0.000 EA	0
6/1/2020	Connected Hoses / Eq Dept. Fixed Hole Covers on DTHH	MMO's Arrived at 12:00PM	Drilled Casing C5P9	Threaded Casing C4P9	NS: Move Vac Tank from the Dock to Ground for Atlantic H&C Access	1.00 EA		0.450 EA	28.250 EA		1
6/2/2020	Drilled Casing C4P9	Greaser Broke while Drilling C4P9 Down for 2.5 Hours - Fixed	Stood/Drove 5 EA Sheet Piles @ North End of Muck Pit	Threaded Casing C4P11	NS: Move Vac Tank from the Dock to Ground for Atlantic H&C Access	1.00 EA		0.400 EA	28.650 EA		1
6/3/2020	Drilled Casings C4P11 & C4P12			NS: Threaded Casing C5P11		2.00 EA		0.800 EA	29.450 EA		1
6/4/2020	Drilled Casings C5P11 & C5P12					2.00 EA		0.750 EA	30.200 EA		1
6/5/2020	Begin Switch from CAS to D-80	NS: Finish Switch from CAS to D-80		Rows B2/C1, Bents 4-5 casings not probed due to min. rock @ drilling.	NS: Muck Out C4P9, C5P9 Casings			0.280 EA	30.480 EA		0
6/6/2020	DID NOT WORK DUE TO 60 HOURS WEEKLY MAN HOUR LIMIT							0.000 EA	30.480 EA		0
6/7/2020								0.000 EA	30.480 EA	2.680 EA	0
6/8/2020	Muck Out C4P9, C5P12 Casings	Drive C4P9 & C5P12(PDA) Piles	NS: Cut C4P9 & C5P12 Piles to Top of Casing	NS: Muck Out C4P12, C5P10, & C5P11 Casings		2.00 EA		0.705 EA	31.185 EA		1
6/9/2020	Continue to Muck Out C4P12, C5P10, & C5P11 Casings	Drive C4P12, C5P10, & C5P11 Piles	NS: Cut C4P12, C5P10, & C5P11 Piles to Top of Casing	NS: Muck Out C4P10, C4P11, & C5P9 Casings		3.00 EA		1.058 EA	32.243 EA		1
6/10/2020	Drive C4P10 & C4P11 Piles	Cut C4P10 & C4P11 Piles to Top of Casing	Continue to Muck Out C5P9 Casing Loose Rock Found While Digging	NS: Continue to Muck Out C5P9 Casing Loose Rock Found While Digging		2.00 EA		0.705 EA	32.948 EA		1
6/11/2020	Continue to Muck Out C5P9 Casing Large Loose Rock Found While Digging	NS: Continue to Muck Out C5P9 Casing Loose Rock Found While Digging						0.000 EA	32.948 EA		0
6/12/2020	Continue to Muck Out C5P9 Casing Large Loose Rock Found While Digging	NS: Continue to Muck Out C5P9 Casing Loose Rock Found While Digging						0.000 EA	32.948 EA		0
6/13/2020								0.000 EA	32.948 EA		0
6/14/2020								0.000 EA	32.948 EA	2.468 EA	0
6/15/2020	Drive C5P9 Pile	Cut C5P9 Pile to Top of Casing	Rmv C4P11, C4P12, C5P11, & C5P12 Casings	NS: Cut C4P11, C4P12, C5P11, & C5P12 Piles to Grade	NS: Begin Removing Template Extension from Bents 4-5	1.00 EA	4.00 EA	0.803 EA	33.750 EA		1
6/16/2020	High Winds/Rain Stopped Work @11:30AM	Continuing Removing Template Extension from Bents 4-5	Prep Piles C4P9, C4P10, C5P9, & C5P10 for Casing Extraction	NS: High Winds/Rain DID NOT WORK				0.000 EA	33.750 EA		0
6/17/2020	Rmv Template Extension from Bents 4-5	Rmv C4P9, C4P10, C5P9, & C5P10 Casings	Cut C4P9, C4P10, C5P9, & C5P10 Piles to Grade	NS: Rmv Main Dock Template from Bents 4-5	NS: Begin Main Dock Template Installation at Bents 2-3		4.00 EA	0.450 EA	34.200 EA		0
6/18/2020	Installed Template @ C2P5, C3P8-9	Switch from D-80 to CAS						0.450 EA	34.650 EA		0
6/19/2020	Drilled Casings C2P5 & C3P9			NS: Begin to Install Template Extension for C2P6, C3P10, & C3P11	NS: Last Night for Night Shift R. Parkerson Transferred to HRBT	2.00 EA		0.925 EA	35.575 EA		1
6/20/2020	0700-0800: Lightning	0800-0930: Waiting on Equip. for Compressor	0930-1300: Communication Issues with Survey					0.000 EA	35.575 EA		0
6/21/2020								0.000 EA	35.575 EA	2.628 EA	0
6/22/2020	Electricians Worked on the LR 1300 All Day	Complete Template Extension Installation for C2P6, C3P10, & C3P11						0.225 EA	35.800 EA		0
6/23/2020	Drilled Casings C2P6, C3P8, & C3P11					3.00 EA		1.050 EA	36.850 EA		1
6/24/2020	Drilled Casing C3P10					1.00 EA		0.350 EA	37.200 EA		1
6/25/2020	Drilled Casings C1P5 & C1P6					2.00 EA		1.000 EA	38.200 EA		1
6/26/2020	Switch from CAS to D-80	Muck Out C2P6, C3P9, C3P10, & C3P11 Casings						0.070 EA	38.270 EA		0
6/27/2020	Continue to Muck Out C2P6, C3P9, C3P10, & C3P11 Casings							0.070 EA	38.340 EA		0
6/28/2020								0.000 EA	38.340 EA	2.765 EA	0
6/29/2020	Attempt to Drive C3P11, but D-80 Hammer Would Not Fire	Muck Out C1P5 & C3P8 Casings						0.070 EA	38.410 EA		0
6/30/2020	Drive C2P6, C3P8, & C3P11 Piles	Attempt to Drive C3P9, but Casing Drove Down w/ Pile to Top of Template				3.00 EA		0.945 EA	39.355 EA		1

7/1/2020	Drive C3P10(PDA) & C1P5 Piles	Cut C1P5, C2P6, C3P8, C3P10, & C3P11 Piles to Top of Casing	Attempt to Pull Casing at Location C3P9	Muck Out C1P6 & C2P5 Casings	Assist ECSFI with Row B2/C1, Bay 3 Fit Test		2.00 EA		0.818 EA	40.173 EA		1
7/2/2020	Continue to Muck Out C1P6, C2P5, & C3P9 Casings	Pull Up C3P9 Casing for Pile Driving Attempt #2			Assist ECSFI with Row B2/C1, Bay 3 Fit Test				0.035 EA	40.208 EA		0
7/3/2020	JULY 4TH OBSERVED HOLIDAY	DID NOT WORK							0.000 EA	40.208 EA		0
7/4/2020									0.000 EA	40.208 EA		0
7/5/2020									0.000 EA	40.208 EA	1.868 EA	0
7/6/2020	Drive C2P5 & C3P9 Piles	Muck Out C1P6 Casing	Attempt to Drive C1P6, but Casing Drove Down w/ Pile; Pulled Out Pile				2.00 EA		0.665 EA	40.873 EA		1
7/7/2020	Pull Up C1P6 Casing for Pile Driving Attempt #2	Muck Out C1P6 Casing	Drive C1P6 Pile	Cut C1P6, C2P5, & C3P9 Piles to Top of Casing	Switch crane locations and begin switching the drill motor air intake.		1.00 EA		0.428 EA	41.300 EA		1
7/8/2020	Extract C1P6, C2P6, C3P10, & C3P11 Casings	Remove Template Extension from Bents 2-3	Extract C2P5, C3P8, & C3P9 Casings	Cut C1P6, C2P5, C2P6, C3P8, C3P9, C3P10 & C3P11 Piles to Grade				7.00 EA	0.788 EA	42.088 EA		0
7/9/2020	Begin Switch from D-80 to CAS	Switch Drill Air Intake Support to Other Side of Drill	Extract C1P5 Casing	Cut C1P6 Pile to Grade	Relocate Materials from the Island to the Dock to Clear Space for Pachios.			1.00 EA	0.113 EA	42.200 EA		0
7/10/2020	Begin Working on South Ramp	Clear Equipment / Materials Off Dock Extension	Remove 8 EA 4'x24' Timber Mats from Dock Extension						0.000 EA	42.200 EA		0
7/11/2020	Working on South Ramp	Off-Load / Set 18 EA 4'x30' Timber Mats on Dock Extension / South Ramp	Remove 2 EA 4'x24' Timber Mats from Dock Extension	Load-Out 8 EA 4'x24' Timber Mats to Yard					0.000 EA	42.200 EA		0
7/12/2020									0.000 EA	42.200 EA	1.993 EA	0
7/13/2020	Move Equipment / Materials Back to the Dock Extension	Secure 18 EA 4'x30' Timber Mats on Dock Extension / South Ramp	Cut 1 EA 4'x30' Timber Mat to Fit	Finish Switch from D-80 to CAS					0.000 EA	42.200 EA		0
7/14/2020	Remove Main Dock Template Installation from Bents 2-3	Begin Main Dock Template Installation at Bents 8-9	Had to make modifications to template due to previous piles being off.	Extract Casing at C8P9 (originally installed July 2019)					0.150 EA	42.350 EA		0
7/15/2020	Finish Main Dock Template Installation at Bents 8-9	Drilled Casings C8P9 & C9P6					2.00 EA		0.850 EA	43.200 EA		1
7/16/2020	Begin Template Extension Installation at Bents 8-9	Drilled Casing C8P8					0.50 EA		0.350 EA	43.550 EA		1
7/17/2020	Finish Template Extension Installation at Bents 8-9	Drilled Casings C8P10, C8P11, & C9P7					3.00 EA		1.450 EA	45.000 EA		1
7/18/2020									0.000 EA	45.000 EA		0
7/19/2020									0.000 EA	45.000 EA	2.800 EA	0
7/20/2020	Move Air Compressors, Water Tanks, Equipment to the Middle of the Dock	Muck Out C8P11 & C9P7 Casings							0.170 EA	45.170 EA		0
7/21/2020	Drilled Casings C10P5 & C10P6	Unload 4 EA 36" Ø x 98' Piles	Begin Switch from CAS to D-80				2.00 EA		0.900 EA	46.070 EA		1
7/22/2020	Muck Out C8P9 & C8P10 Casings	Finish Switch from CAS to D-80	Drive C8P9, C8P10, C8P11, & C9P7 Piles				4.00 EA		1.330 EA	47.400 EA		1
7/23/2020	Mechanics Inspecting LR 1300 / VTL System Whip Line Sheave	Remove D-80 Hammer from Leads, Lower VTL, Assist with Man Basket	Muck Out C8P8, C9P6, C10P5, & C10P6 Casings	Cut C8P9, C8P10, C8P11, & C9P7 Piles to Top of Casing					0.220 EA	47.620 EA		0
7/24/2020	Muck Out C8P8, C9P6, C10P5, & C10P6 Casings	Unload 4 EA 36" Ø x 98' Piles	Drive C8P8 & C9P6 Piles	Cut C8P8 & C9P6 Piles to Top of Casing			2.00 EA		0.740 EA	48.360 EA		1
7/25/2020									0.000 EA	48.360 EA		0
7/26/2020									0.000 EA	48.360 EA	3.360 EA	0
7/27/2020	Muck Out C10P5 & C10P6 Casings	Drive C10P5 & C10P6 Piles					2.00 EA		0.665 EA	49.025 EA		1
7/28/2020	Cut C10P5 & C10P6 Piles to Top of Casing	Extract C8P8-P11, C9P6, C9P7, C10P5, & C10P6 Casings	Begin Template Extension Demobilization					8.00 EA	0.875 EA	49.900 EA		0
7/29/2020	Cut C8P8-P11, C9P6, C9P7, C10P5, & C10P6 Piles to Grade	Finish Template Extension Demobilization	Place 2nd Layer of Timber Mats Row B2/C1 Bay 3						0.150 EA	50.050 EA		0
7/30/2020	Load Out Template Extension to Yard	Load Out 4 EA Casings to Yard							0.050 EA	50.100 EA		0
7/31/2020	PREPARE SITE FOR HURRICANE ISAIAS	Remove Existing Submerged Steel Plate	Set-Up Bubble Curtian in the Water for Row C2 Piles						0.000 EA	50.100 EA		0
8/1/2020	PREPARE SITE FOR HURRICANE ISAIAS								0.000 EA	50.100 EA		0
8/2/2020									0.000 EA	50.100 EA	1.740 EA	0
8/3/2020	PREPARE SITE FOR HURRICANE ISAIAS								0.000 EA	50.100 EA		0
8/4/2020	HURRICANE ISAIAS								0.000 EA	50.100 EA		0
8/5/2020	REMOBILIZE SITE FROM HURRICANE ISAIAS DEMOB	Remove Main Dock Template Installation from Bents 8-9	Begin Main Dock Template Installation at Bents 4-5	Begin Switch from D-80 to CAS					0.150 EA	50.250 EA		0
8/6/2020	Finish Main Dock Template Installation at Bents 4-5	Finish Switch from D-80 to CAS							0.150 EA	50.400 EA		0
8/7/2020	Begin Drilling Casing C4P14						0.50 EA		0.275 EA	50.675 EA		1
8/8/2020	Finished Drilling Casing C4P14	Begin Drilling Casing C4P13					1.00 EA		0.350 EA	51.025 EA		1
8/9/2020									0.000 EA	51.025 EA	0.925 EA	0

8/10/2020	Finished Drilling Casing C4P13	Drilled Casing C5P13	Begin Drilling Casing C5P14			2.00 EA			0.800 EA	51.825 EA		1
8/11/2020	Finished Drilling Casing C5P14	Begin Switch from CAS to D-80				0.50 EA			0.175 EA	52.000 EA		0
8/12/2020	Finish Switch from CAS to D-80	Muck Out C4P14, C5P13, & C5P14 Casings							0.070 EA	52.070 EA		0
8/13/2020	Muck Out C4P13, C4P14, C5P13, & C5P14 Casings	Drive C4P14, C5P13, & C5P14 Piles	Cut C4P14, C5P13, & C5P14 Piles to Top of Casing				3.00 EA		1.093 EA	53.163 EA		1
8/14/2020	Muck Out C4P13 Casing	Drive C4P13 Pile	Cut C4P13 Pile to Top of Casing				1.00 EA		0.388 EA	53.550 EA		1
8/15/2020									0.000 EA	53.550 EA		0
8/16/2020									0.000 EA	53.550 EA	2.525 EA	0
8/17/2020	Weld Splice to C4P13 Casing for Extraction	Extract C4P13, C4P14, C5P13, & C5P14 Casings	Begin Switch from D-80 to CAS				4.00 EA		0.400 EA	53.950 EA		0
8/18/2020	Cut C4P13, C4P14, C5P13, & C5P14 Piles to Grade	Relocate Main Dock Template from Bents 4-5 to Bents 2-3	Finish Switch from D-80 to CAS	Thread Casing C2P7					0.400 EA	54.350 EA		0
8/19/2020	Drilled Casings C2P7, C3P12, & C3P13					3.00 EA			1.150 EA	55.500 EA		1
8/20/2020	Assist East Coast Steel with Rows B2/C1, Bay 1 Superstructure	Thread Casing C1P7	Begin to Muck Out C2P7, C3P12, & C3P13 Casings	Unload 4 EA 36"Ø x 98' Piles					0.000 EA	55.500 EA		0
8/21/2020	Attempted to Drill C1P7, but the Pilot Bit/Hammer Came a Part in the Casing While Unlocking the Drill		Pulled Out C1P7 Casing and Removed Pilot Bit/DTH Hammer						0.150 EA	55.650 EA		0
8/22/2020									0.000 EA	55.650 EA		0
8/23/2020									0.000 EA	55.650 EA	2.100 EA	0
8/24/2020	Installed Back-Up DTH Hammer	Could Not Get Back-Up DTH Hammer to Work							0.035 EA	55.685 EA		0
8/25/2020	Attempted to Get the Back-Up DTH Hammer to Work	Remove Back-Up DTH Hammer to Send Out for Repairs	Begin Switch from CAS to D-80	Continue to Muck Out C2P7, C3P12, & C3P13 Casings					0.035 EA	55.720 EA		0
8/26/2020	Finish Switch from CAS to D-80	Finish Mucking Out C2P7, C3P12, & C3P13 Casings	Drive C2P7, C3P12, & C3P13 Piles				3.00 EA		0.980 EA	56.700 EA		1
8/27/2020	Cut C3P12 & C3P13 Piles to Grade	Cut C2P7 Pile to Top of Casing	Weld On Casing Extensions to C2P7, C3P12, & C3P13 for Extraction						0.138 EA	56.838 EA		0
8/28/2020	Finish Welding On Extensions to C2P7, C3P12, & C3P13 Casings	Extract C2P7, C3P12, & C3P13 Casings	Cut C2P7 Pile to Grade				3.00 EA		0.313 EA	57.150 EA		0
8/29/2020									0.000 EA	57.150 EA		0
8/30/2020									0.000 EA	57.150 EA	1.500 EA	0
8/31/2020	Waiting on DTH Hammer to Return	Relocate Main Dock Template from Bents 2-3 to Bents 6-7	Prepare Drill for DTH Hammer Return	Unload 1 EA 42"Ø x 55' Casing	Assist ECSFI with the Installation of 22 Timber Mats				0.300 EA	57.450 EA		0
9/1/2020	Waiting on DTH Hammer to Return	Relocate Materials and Equipment on Dock	Repaired Old Plywood Hole Coverings	Perform Full Inspection of the LR 1300 Vertical Travel Leads					0.000 EA	57.450 EA		0
9/2/2020	Unload DTH Hammer Pilot Bit	Assist ECSFI with the Installation of Timber Mats	Finish Switch from D-80 to CAS						0.000 EA	57.450 EA		0
9/3/2020	Drilled Casing C1P7					1.00 EA			0.350 EA	57.800 EA		1
9/4/2020	Drilled Casings C6P14, C7P13, & C7P14					3.00 EA			1.200 EA	59.000 EA		1
9/5/2020									0.000 EA	59.000 EA		0
9/6/2020									0.000 EA	59.000 EA	1.850 EA	0
9/7/2020	LABOR DAY - DID NOT WORK								0.000 EA	59.000 EA		0
9/8/2020	Drilled Casing C6P13	Begin to Muck Out C6P14, C7P13, & C7P14 Casings	Drive C6P14 Pile			1.00 EA	1.00 EA		0.885 EA	59.885 EA		1
9/9/2020	Continue to Muck Out C1P7, C6P13, C7P13, & C7P14 Casings	Unload 4 EA 36"Ø x 98' Piles	Drive C7P13 & C7P14 Piles				2.00 EA		0.665 EA	60.550 EA		1
9/10/2020	Continue to Muck Out C1P7 & C6P13 Casings	Drive C1P7 Pile					1.00 EA		0.350 EA	60.900 EA		1
9/11/2020	Continue to Muck Out C6P13 Casing	Drive C6P13 Pile	Cut C6P13, C6P14, C7P13, & C7P14 Piles to Top of Casing				1.00 EA		0.500 EA	61.400 EA		1
9/12/2020									0.000 EA	61.400 EA		0
9/13/2020									0.000 EA	61.400 EA	2.400 EA	0
9/14/2020	Began Notching Piles & Prepared Casings for Extraction	Extract C7P13 Casing	H-Pile Extraction - Day 1 of 3				1.00 EA		0.100 EA	61.500 EA		0
9/15/2020		Extract C6P13 & C6P14 Casings	H-Pile Extraction - Day 2 of 3				2.00 EA		0.200 EA	61.700 EA		0
9/16/2020	Cut C6P13, C6P14, C7P13, & C7P14 Piles to Grade	Relocated Template to Row C2, Bents 8 & 9	H-Pile Extraction - Day 3 of 3	Unload 4 EA 36"Ø x 98' Piles					0.500 EA	62.200 EA		0
9/17/2020	Drilled Casings C8P12, C8P13, & C9P8	Cut C1P7 Pile to Grade	Unload 1 EA 42"Ø x 55' Casing from Little Creek Yard			3.00 EA			1.100 EA	63.300 EA		1
9/18/2020	NO WORK DUE TO WEATHER & OVER 50 HOURS								0.000 EA	63.300 EA		0
9/19/2020									0.000 EA	63.300 EA		0
9/20/2020									0.000 EA	63.300 EA	1.900 EA	0

9/21/2020	Drilled Casing C10P7	Begin to Muck Out C8P12, C8P13, C9P8, & C10P7 Casings				1.00 EA			0.535 EA	63.835 EA		1
9/22/2020	Continue to Muck Out C8P12, C8P13, C9P8, & C10P7 Casings								0.105 EA	63.940 EA		0
9/23/2020	Drive C8P12, C8P13, C9P8, & C10P7 Piles	Cut C8P12, C8P13, C9P8, & C10P7 Piles to Top of Casing					4.00 EA		1.410 EA	65.350 EA		1
9/24/2020	Load Out Drilling Equipment, Materials, & Demob								0.000 EA	65.350 EA		0
9/25/2020	Load Out Drilling Equipment, Materials, & Demob								0.000 EA	65.350 EA		0
9/26/2020									0.000 EA	65.350 EA		0
9/27/2020									0.000 EA	65.350 EA	2.050 EA	0
9/28/2020	Extract C8P12, C8P13, & C9P8 Casings	Cut C8P12 & C8P13 Piles to Grade						3.00 EA	0.325 EA	65.675 EA		0
9/29/2020	Cut C9P8 & C10P7 Piles to Grade	Disassemble Casing Advancement Template; Load Out							0.025 EA	65.700 EA		0
9/30/2020	Disassemble Berminghammer Leads								0.000 EA	65.700 EA		0
10/1/2020	Extract C10P7 Casing							1.00 EA	0.100 EA	65.800 EA		0
10/2/2020	Extract C1P7 & C7P14 Casings							2.00 EA	0.200 EA	66.000 EA	0.650 EA	0
10/3/2020									0.000 EA	66.000 EA		0
Total Days of Pile Installation:											64	

A detailed description of the construction activities for which takes were authorized may be found in the Federal Register notice of proposed IHA for the 2020 authorization (84 FR 64848; November 25, 2019). The location, timing (e.g., seasonality), and nature of the pile driving operations, including the type and size of piles and the methods of pile driving, that will be analyzed in the 2021 IHA Renewal Request are identical to those analyzed in the current 2020 IHA.

4.2 Marine Species Observed in the Project Area

During the 2020 construction window, MMOs were on site for 108 days to observe both upland and in-water pile driving activities. Of those 108 days, only 64 were used for in-water pile driving activities. At no time during both upland and in-water pile driving did MMOs observe Level A or Level B harassment exposures to marine mammals.

Table 2, details the allowable NOAA authorized takes under the March 10, 2020 IHA, documented take and the actual marine mammal sighting that occurred. Table 3 identifies each sighting that occurred. Corresponding MMO “Daily Protected Species Sighting & Shut-Down Form” can be found in Appendix A.

Table 2- Takes Authorized in 2020 IHA and Take Documented by Species in the 2020 IHA Construction Window

Species	Stock	Authorized Level A Takes	Authorized Level B Takes	Documented # of Species Sighted (Mar. 20- Oct. 2, 2020)	Documented 2020 Level A Takes	Documented 2020 Level B Takes
Humpback whale	Gulf of Maine	0	12	0	0	0
Harbor porpoise	Gulf of Maine/Bay of Fundy	5	7	0	0	0
Bottlenose dolphin	WNA Coastal, Northern Migratory	142	14,095	100	0	0
	WNA Coastal, Southern Migratory	142	14,095			
	NNCES	2	198			
Harbor seal	Western North Atlantic	1,296	2,124	0	0	0
Gray seal	Western North Atlantic	1	3	0	0	0

Table 3- Occurrence of Marine Mammals Observed

Date:	Species Observed:	QTY Observed:	Location Observed:	Associated Take:
4/5/2020	Bottlenose Dolphin	3	West of Channel on PI 1	NA
4/11/2020	Bottlenose Dolphin	16	West of Channel on PI 1	NA
5/15/2020	Bottlenose Dolphin	3	North of Channel on PI	NA
6/25/2020	Bottlenose Dolphin	4	North of Channel on PI 1	NA
6/25/2020	Bottlenose Dolphin	1	SW of PI 1	NA
7/22/2020	Bottlenose Dolphin	9	West of Channel on PI 1	NA
8/8/2020	Bottlenose Dolphin	6	N& W of PI 1	NA
8/10/2020	Bottlenose Dolphin	3	NW of PI 1	NA
8/10/2020	Bottlenose Dolphin	6	SW of PI 1	NA
8/11/2020	Bottlenose Dolphin	5	East of PI 1	NA
8/11/2020	Bottlenose Dolphin	4	North of PI 1	NA
8/11/2020	Bottlenose Dolphin	1	W/ NW of PI 1	NA
8/12/2020	Bottlenose Dolphin	3	N of PI 1	NA
8/13/2020	Bottlenose Dolphin	2	N of PI 1	NA
8/24/2020	Bottlenose Dolphin	7	E of PI 1	NA
8/25/2020	Bottlenose Dolphin	1	NW of PI 1	NA
8/25/2020	Bottlenose Dolphin	2	NE of PI 1	NA
8/26/2020	Bottlenose Dolphin	3	NW of PI 1	NA
8/26/2020	Bottlenose Dolphin	9	SW of PI 1	NA
8/28/2020	Bottlenose Dolphin	12	NE of PI 1	NA
Total Dolphin Sightings:		100	Total Dolphin Takes:	0

Since Level A or Level B harassment exposures to marine mammals have occurred, the subset of Level A and Level B takes remaining from the 2020 IHA authorization will be sufficient to cover the 2021 pile installation and removal activities in the CTJV's 2021 Renewal Request.

5. MITIGATION MEASURES

5.1 GENERAL CONSTRUCTION MITIGATION

The Project followed the guidance of NOAA's March 10, 2020 issued IHA Mitigation Measures. These measures include:

- For in-water construction heavy machinery activities other than pile driving (*e.g.*, use of barge-mounted excavators, or dredging), if a marine mammal comes within 10 m, CTJV must cease operations and reduce vessel speed to the minimum level required to maintain steerage and safe working conditions.
- CTJV is required to conduct briefings for construction supervisors and crews, the monitoring team, and CTJV staff prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, the marine mammal monitoring protocol, and operational procedures.
- CTJV is required to employ between two and four MMOs per the activity as outlined in the issued March 10, 2020 IHA.
- Marine mammal monitoring must take place from 30 minutes prior to initiation of pile driving activity through 30 minutes post-completion of pile driving activity. Pre-activity monitoring must be conducted for 30 minutes to ensure that the shutdown zone is clear of marine mammals, and pile driving may commence when observers have declared the shutdown zone clear of marine mammals. In the event of a delay or shutdown of activity resulting from marine mammals in the shutdown zone, animals shall be allowed to remain in the shutdown zone (*i.e.*, must leave of their own volition) and their behavior shall be monitored and documented.

CTJV must establish shutdown zones at the following distances:

- i. 100 meters for harbor porpoise and bottlenose dolphin.
- ii. 15 meters for harbor seal and gray seal.
- iii. For humpback whales isopleths in low-frequency cetaceans, depending on activity type, has a shutdown zone between 90- 2,920 meters.
- If a marine mammal enters or is observed within an established shutdown zone pile driving 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 or 15 minutes have passed without subsequent detections of the animal.

- Should environmental conditions deteriorate such that marine mammals within the entire shutdown zone would not be visible (e.g., fog, heavy rain), pile driving and removal must be delayed until the MMO(s) is confident marine mammals within the shutdown zone could be detected.
- CTJV must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of strikes at reduced energy, followed by a thirty-second waiting period, then two subsequent reduced energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of thirty minutes or longer.
- CTJV must use an air bubble curtain system during impact pile driving of steel pipe piles. Bubble curtains must meet the following requirements:
 - i. The bubble curtain must distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column.
 - ii. The lowest bubble ring must be in contact with the mudline and/or rock bottom for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent mudline and/or rock bottom contact. No parts of the ring or other objects shall prevent full mudline and/or rock bottom contact.
 - iii. The bubble curtain must be operated such that there is proper (equal) balancing of air flow to all bubblers.
 - iv. CTJV must employ the bubble curtain during impact pile driving of all steel piles in water depths greater than 3 m (10 ft.).
- CTJV must establish Level A harassment and B harassment monitoring zones as.

If a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized takes are met, is observed entering or within the monitoring zones outlined in March 10, 2020 IHA, pile driving activities must shut down immediately using delay and shutdown procedures. Activities must not resume until the animal has been confirmed to have left the area or the 15 minute observation time period has elapsed.

Appendix A:

2020 Marine Mammal Monitoring Plan

Marine Mammal Monitoring Plan for the Parallel Thimble Shoal Tunnel Project

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Submitted to:

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March 2020

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Figure 3: Distance (meters) to Shutdown Zone using a Vibratory Hammer for Non-Simultaneous 36- and 42-in Steel Pile Driving for the Temporary Dock - 10 Piles per day at Portal Island No. 1

Figure 4: Distance (meters) to Shutdown Zone using two Down-the-Hole Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the Omega Trestle/West O-Pile Wall/Mooring Piles and Templates - 6 Piles

Figure 5: Distance (meters) to Shutdown Zone using two Down-the-Hole Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the Omega Trestle/West O-Pile Wall/Mooring Piles and Templates - 6 Piles per day at Portal Island No. 2

Figure 6: Distance (meters) to Shutdown Zone using two Down-the-Hole Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the East O-Pile Wall - 6 Piles per day at Portal Island No. 1

Figure 7: Distance (meters) to Shutdown Zone using two Down-the-Hole Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the East O-Pile Wall - 6 Piles per day at Portal Island No. 2

Figure 8: Distance (meters) to Shutdown Zone using two Down-the-Hole Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the Temporary Dock - 6 Piles per day at Portal Island No. 1 per day at Portal Island No. 1 Piles per Day

Figure 9: Distance (meters) to Shutdown Zone using a Down-the-Hole & Impact Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the Omega Trestle/West O-Pile Wall/Mooring Piles and Templates – 3-DTH & 10 Impact Piles per day at Portal Island No. 1

Figure 10: Distance (meters) to Shutdown Zone using a Down-the-Hole & Impact Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the Omega Trestle/West O-Pile Wall/Mooring Piles and Templates – 3-DTH & 10 Impact Piles per day at Portal Island No. 2

Figure 11: Distance (meters) to Shutdown Zone using a Down-the-Hole & Impact Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the East O-Pile Wall – 3-DTH & 10 Impact Piles per day at Portal Island No. 1

Figure 12: Distance (meters) to Shutdown Zone using a Down-the-Hole & Impact Hammers for Simultaneous 36- and 42-in Steel Pile Driving for the East O-Pile Wall – 3-DTH & 10 Impact Piles per day at Portal Island No. 2

Figure 13: Distance (meters) to Level B Threshold Using an Impact Hammer or Impact Hammer with Bubble Curtain for Non-Simultaneous 36- and 42-in Steel Pile Driving for the Temporary Dock at Portal Island No. 1

Figure 14: Distance (meters) to Level B Threshold Using a Vibratory Hammer for Non-Simultaneous 36- and 42-in Steel Pile Driving for the Omega Trestle/West O-Pile Wall/Mooring Piles and Templates at Portal Island No. 1

Figure 15: Distance (meters) to Level B Threshold Using a Vibratory Hammer for Non-Simultaneous 36- and 42-in Steel Pile Driving for the Omega Trestle/West O-Pile Wall/Mooring Piles and Templates at Portal Island No. 1

Figure 16: Distance (meters) to Level B Threshold Using a Vibratory Hammer for Non-Simultaneous 36- and 42-in Steel Pile Driving for the Omega Trestle/West O-Pile Wall/Mooring Piles and Templates at Portal Island No. 2

Figure 16: Distance (meters) to Level B Threshold Using a Vibratory Hammer for Non-Simultaneous 36- and 42-in Steel Pile Driving for the Temporary Dock at Portal Island No. 1

LIST OF TABLES

Table 1	Authorized Amounts of Taking, by Level A Harassment and Level B Harassment, by species and stock.
Table 2	Level A and B Harassment Monitoring Zones During Project Activity

ACRONYMS AND ABBREVIATIONS

CT JV	Chesapeake Tunnel Joint Venture
DTH	Down the Hole
ft	feet
GPS	Global Positioning System

IHA	Incidental Harassment Authorization
MHW	Mean High Water
MLW	Mean Low Water
MMMP	Marine Mammal Monitoring Plan
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Marine Fisheries Service
Nos.	Numbers
PTS	Permanent Threshold Shift
PTST	Parallel Thimble Shoal Tunnel
SOE	Support of Excavation
TBM	Tunnel boring machine
ZOI	Zone of impact

1. INTRODUCTION

The Parallel Thimble Shoal Tunnel (PTST) Project consists of the construction of a two-lane parallel tunnel to the west of the existing Thimble Shoal Tunnel, connecting Portal Island Numbers (Nos.) 1 and 2 (Figure 1). Upon completion, the new tunnel will carry two lanes of southbound traffic and the existing tunnel will remain in operation and carry two lanes of northbound traffic. The 6,525 linear feet (ft) of new tunnel will be constructed using a tunnel boring machine (TBM), with 5,356 linear ft located below Mean High Water (MHW).

Pile driving during construction of the PTST Project has the potential to cause sound levels that exceed Level A and Level B acoustic harassment thresholds for marine mammals as defined by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NOAA Fisheries) Office of Protected Resources (NOAA Fisheries 2016).

During a 12-month construction period extending from September 2019 through August 2020 (Table 1), up to 130 hollow steel piles measuring 36 inches in diameter will be installed to support a temporary dock at Portal Island No. 1. Of these, 64 will be placed in-water and 47 will be placed upland (above the Mean High Water [MHW] line). Up to 30 hollow steel piles (36-inch diameter) will be installed to provide mooring facilities on the west side of the portal islands (a total of 6 dolphin moorings comprised of 5 piles each).

Construction will also include two temporary Omega trestles, each with 28 in-water and 8 upland piles, for a total of 36, 36-inch hollow steel pipe piles offset to the west side of each engineered berm and extending channelward from Portal Island Nos. 1 and 2, respectively. In-water pile driving activities, will also include installation of o-piles for berm Support of Excavation (SOE) walls at each portal island. Up to a total of 488 36-inch diameter hollow steel interlocked piles will be installed in-water for the SOE walls. There will also be driving of landside sheet pile on Portal Island No. 1 to construct the holding bins (muck bin) for excavated tunnel material and to support tunnel excavation activities.

Table 1. Authorized Amount of Taking, by Level A Harassment and Level B Harassment, by species and stock

Species	Stock	Level A Takes	Level B Takes
Humpback whale	Gulf of Maine	--	12
Harbor porpoise	Gulf of Maine/Bay of Fundy	5	7
Bottlenose dolphin	WNA Coastal, Northern Migratory	142	14,095
	WNA Coastal, Southern Migratory	142	14,095
	NNCES	2	198
Harbor seal	Western North Atlantic	1,296	2,124
Gray seal	Western North Atlantic	1	3

The Chesapeake Tunnel Joint Venture (CTJV) has submitted an Incidental Harassment Authorization (IHA) application to request takes for four species: harbor seals (*Phoca vitulina*), gray seals (*Halichoerus grypus*), bottlenose dolphin (*Tursiops* spp.), and humpback whales (*Megaptera novaeangliae*) by Level B harassment. Fin whales (*Balaenoptera physalus*), North Atlantic right whales (*Eubalaena glacialis*), and harbor porpoise (*Phocoena phocoena*) are expected to be rare in the PTST Project Area, and no takes have been requested for these species. Pile and sheet pile driving operations will cease if any marine mammal species enters the Level A Shutdown Zones (Section 3) or if fin whales, humpback whales, North Atlantic right whales, and harbor porpoise are observed in the level B monitoring zones (Section 3). No takes are requested for airborne noise associated with on-land pile driving. Prior to the issuance of the IHA, pile driving on Portal Islands will cease if gray or harbor seals are observed entering the Level B airborne noise monitoring zone associated with these activities. Takes requested are summarized in Table 2.

Table 2. Level A and B Harassment Monitoring Zones During Project Activities (meters)

Scenario		Level A Harassment Zones				Level B Monitoring Zones
		Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	
Driving Type	Pile Type	Island 1 & 2	Island 1 & 2	Island 1 & 2	Island 1 & 2	Island 1 & 2
Impact	12-in. Timber	90	--	105	--	25
	36-in. Steel	2,920	105	3,480	1,565	1,585
Impact with Bubble Curtain	36-in. Steel	1,000	--	1,190	535	545
DTH – Impulsive	42-in. Steel	970	--	1,155	520	215
DTH Simultaneous at same island	42-in. Steel	1,535	--	1,830	825	215
DTH & Impact Hammer with bubble curtain: Simultaneous at the same island	36-and 42-in. Steel	1,970	--	2,400	1,055	545

DTH at PI 1. And Impact with Bubble Curtain Hammer at PI 2	36-and 42-in. Steel	970	--	1,155	520	215 from PI 1 545 from PI 2
Continuous (Vibratory)	12-in. Timber	--	--	--	--	1,360
	36-in. Steel	20	--	--	--	21,545
	42- in.** Steel	20	--	--	--	21,545

-- indicates that shutdown zone is larger than calculated harassment zone.

**Activity only planned at Portal Island 1 as part of project pile driving plan.

Level A Shutdown Zones and B Zones of Impact (ZOI) are calculated based on the type of activity occurring and the hearing frequency of the marine mammal. Animals that may inhabit or pass through the area of construction are classified within the following hearing frequencies:

High Frequency Cetacean:

- Harbor Porpoise (*Phocoena phocoena*)

Mid-Frequency Cetacean:

- Bottlenose Dolphins (*Tursiops spp.*)

Low Frequency Cetacean:

- Baleen Whales:
 - Fin Whale (*Balaenoptera physalus*)
 - Humpback Whale (*Megaptera novaeangliae*)
 - North Atlantic Right Whale (*Eubalaena glacialis*)

Phocid Pinnipeds:

- Harbor Seals (*Phoca vitulina*)
- Gray Seals (*Halichoerus grypus*)

This PTST Marine Mammal Monitoring Plan (MMMP) proposes a protocol for monitoring marine mammals during round pile and sheet pile driving activities in the Project Area. The goal of this MMMP is to prevent unauthorized Level A or Level B takes and to minimize Level B harassment using clearly defined methods for monitoring and shutdown procedures during construction. Incidents of harassment and construction shutdown events will be recorded and reported.

2. METHODS

2.1 MONITORING PROCEDURES

The CTJV, the design-build contractor for the PTST Project, proposes the following MMMP procedures:

- Use of marine mammal observers during pile and sheet pile driving activities. Observers will meet the criteria defined in Section 2.2.
- Monitoring distances, in accordance with the Level A Shutdown Zone and Level B ZOI identified in Section 3, will be determined by using a range finder, scope, hand-held global positioning system (GPS) device or landmarks with known distances from the monitoring positions. Monitoring locations will be based on land at either Portal Island No. 1 or Portal Island No. 2.
- If the entire Level B monitoring zone is not visible, pile driving activities may continue, and the number of individual listed animals within the Level B zone will be estimated and recorded. Estimated numbers of individuals will be extrapolated by dividing the number of observed individuals by the percentage of the monitoring zone that was visible.
- Zones will be monitored for the presence of marine mammals 30 minutes before, during, and 30 minutes after any pile driving activity. Observers will scan the waters within the area of potential sound effects using binoculars (10X42 or similar) or spotting scopes (20-60 zoom or equivalent), and make visual observations.
- Monitoring will be continuous unless the contractor takes a break longer than 2 hours from active pile and sheet pile driving, in which case, monitoring will be required 30 minutes prior to restarting pile installation.
- If marine mammals are observed, their location within the zones, and their reaction (if any) to pile activities will be documented.
- If a marine mammal crosses into the designated ZOIs for that species, additional monitoring or a temporary stop to pile driving activity will occur, in accordance with the procedures outlined in Section 5 of this Monitoring Plan.
- If weather or sea conditions restrict the observer's ability to observe, or become unsafe, pile installation will be suspended until conditions allow for monitoring to resume.
- For in-water pile driving, under conditions of fog or poor visibility that might obscure the presence of a marine mammal within the shutdown zone, the pile in progress will be completed and then pile driving suspended until visibility conditions improve. Visibility will be confirmed and approved by the MMO at the beginning of the shift. Likewise, the certified MMO will determine the number of observers needed to cover the ZOI based on

the visibility conditions anticipated for the following shift and their best professional judgement call.

Monitoring will occur year-round, during pile driving operations, because some marine mammal species have the potential to be present at any time of the year.

2.2 OBSERVER QUALIFICATIONS

The CTJV will employ NOAA Fisheries-approved marine mammal observers to monitor Level A Shutdown Zones and Level B ZOI. These individuals will be independent (i.e., not construction personnel) trained biologists with:

- Visual acuity in both eyes sufficient to see moving objects on the water's surface; ability to estimate object size and distance.
- The ability to make visual field observations and collect data as described in the protocol.
- Experience or training with identifying marine mammals in the field.
- Sufficient training, orientation or experience with the construction operation to provide for personal safety during observations.
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience).
- The ability to prepare a status report of monitoring activities that describes the species and number of individuals observed, dates and times of construction activities; dates of when construction activities were ceased or shutdown to avoid Level A harassment to any species or Level B harassment for any species for that the PTST Project is not authorized to take.

If only one marine mammal observer is needed, this individual will have prior experience with observing marine mammals in the field. If teams of two or more observers are needed, one observer will be designated as the lead observer. The lead observer will have prior experience working as a marine mammal observer, and additional observers may substitute education or training for experience.

2.3 DATA COLLECTION

Marine mammal observers at the PTST Project Area will use Observation Record Forms approved by NOAA. An observation record will be completed by each observer for each location and day of survey.

The following data will be included in the observation records:

- Date and time that in-water or upland round pile or sheet pile driving/installation begins and/or ends;
- Sea state using the Beaufort Wind Force Scale and weather including percent cloud cover, percent glare, visibility;
- Species, numbers of individuals, and when possible the sex and age class of observed marine mammals;
- Pile driving or sheet pile activities occurring during each sighting;
- Behaviors exhibited by observed marine mammals, including bearing and direction of travel, and behavioral responses to soft-start and shutdown procedures;
- Location of marine mammal, distance from observer to marine mammal, and distance from the pile driving activities to the marine mammal.
- Whether the observation required implementation of shutdown procedures and the duration of each shutdown;
- Other human activity in the area such as fishing or transit of navy or cargo ships in the navigation channel. Hull numbers of fishing, cargo, or navy vessels will be recorded if possible.

2.4 EQUIPMENT

Marine mammal observers will have the following equipment available during monitoring:

- Binoculars
- Range finder
- Logbook
- Cell phone or other wireless communication
- GPS Unit (for all vessel based observations, if implemented).

3. LEVEL A AND LEVEL B MONITORING ZONES

Impact hammer and Down-the-hole (DTH) drill will be used to install hollow steel and king piles. Above Mean High Water, sheet piles will be installed using a vibratory and impact hammer. No airborne sound data were available for impact driving of King Piles and Sheet Piles to determine in-air Level B monitoring zones and therefore, the Level B ZOI for impact driving of the hollow steel pile should be followed during such activity. The Level B ZOI will remain constant in size through the daily pile driving activities. The Level A Shutdown Zones will depend on the duration of pile driving activity and the presence of marine mammals per 24-hour period. For impact driving, up to 3 piles will be driven per 24-hour period using the following adaptive monitoring approach: Monitoring will begin each day using the 3-hour (i.e., 3-pile) Level A Shutdown Zone. If after the first pile is driven, no marine mammals have been observed in the Level A Shutdown Zone, then the Level A Shutdown Zone will reduce to the 2-hour Zone.

If no marine mammals are observed within the 2-hour Level A Shutdown Zone during the driving of the second pile, then the Level A Shutdown Zone will reduce to the 1-hour Zone. However, if a mammal is observed entering the 3-hour Level A Shutdown Zone during the driving of the first pile, then the 3-hour Level A Shutdown Zone will be monitored for the remainder of pile driving activities for that day. Likewise, if a marine mammal is observed within the 2-hour Shutdown Zone, then the 3-hour Level A Shutdown Zone will be monitored for the remainder of pile driving activities for that day.

The monitoring zone sizes for Level A (shutdown) depend on the number of piles to be driven each day and whether simultaneous pile driving will occur. For this Project, simultaneous pile driving refers to one hammer operating on each Portal Island or two hammers operating on the same island.

4. OBSERVER LOCATIONS

Marine mammal observers will be located on Portal Island Nos. 1 and 2.

5. RESPONSE TO OBSERVED MARINE MAMMALS

5.1 OBSERVATIONS OF HEALTHY MARINE MAMMALS

If a whale or harbor porpoise is observed entering the Level A or Level B monitoring zones, the observer will directly contact the construction supervisor to indicate that pile driving needs to be stopped immediately. The observer will track the individual until it has left the Level A Shutdown Zone. After the whale or porpoise has been out of the Level A Shutdown Zone and B monitoring zones for 30 minutes, the observer will notify the construction supervisor that pile driving activities may resume.

If a seal or bottlenose dolphin enters the Level A Shutdown Zones, the observer will directly contact the construction supervisor to indicate that pile driving needs to be stopped immediately. The observer(s) tracks the individual until it has left the Level A Shutdown Zone. After the seal or dolphin has been out of the Level A Shutdown Zone for 30 minutes, the observer will notify the construction supervisor that pile driving activities may resume.

If a seal or bottlenose dolphin enters the Level B monitoring zone for in-water activities, the observer will record a take of the species observed. Each individual marine mammal will count once as a take in a 24-hour period. If a seal enters the Level B monitoring zone for in water or in-air pile driving activities the observer will record a take of the species observed. If the seal hauls out it or is recorded hauled out it is not recorded again in the reciprocal environment. The observer(s) will track the individual until it has left the Level B monitoring zone.

All observations and takes of marine mammals will be documented on observation forms and compiled records will be reported to NOAA in accordance with the reporting procedures described in Section 6.

5.2 OBSERVATIONS OF INJURED OR DEAD MARINE MAMMALS

If dead or dying marine mammals are observed in the monitoring zones, regardless of known cause, the observer(s) will:

- Record the species type (if known), date, time, and location of the observation,
- Take a photograph of the specimen, and
- Immediately notify NOAA Fisheries.

5.3 UNAUTHORIZED EXPOSURES

If an unauthorized exposure occurs (e.g., a marine mammal occurring in a Level A Shutdown Zone or Level B ZOI without an authorized take), the observer(s) will:

- Record the species type (if known), date, time, and location of the observation,
- Record any behavioral changes that occur during observation,
- Contact the construction manager to cease pile driving activity immediately, and
- Immediately notify NOAA Fisheries.

6. REPORTING

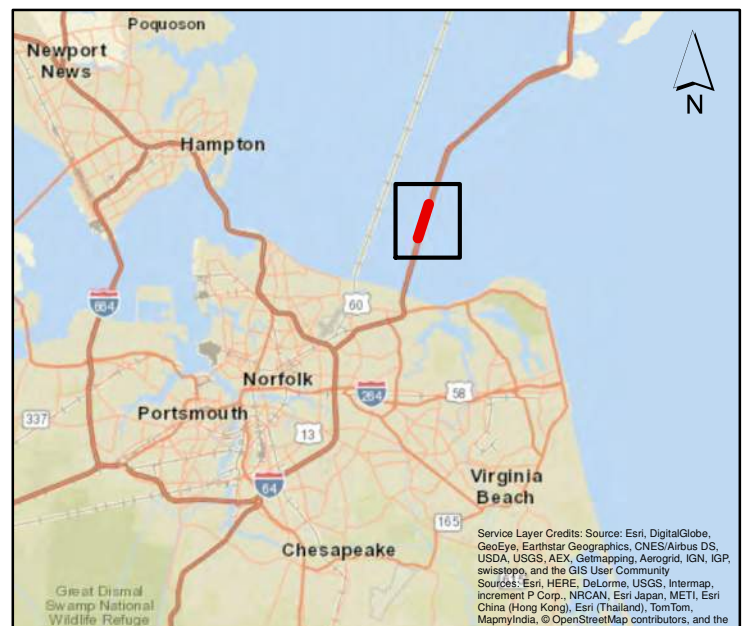
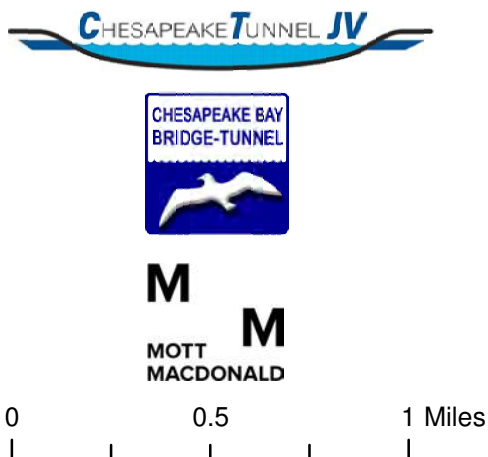
An annual report will be prepared and distributed to NOAA Fisheries once per calendar year that pile or sheet pile driving occurs. The report will be provided to NOAA Fisheries by December 31 of each year where a report is needed. This annual report will include an executive summary, monitoring methodology, tabulation of marine mammal observations (including number, type, and location of observations), dates and times when monitoring occurred, and pile driving was completed, and dates and times when in-water construction was suspended because of marine mammals.

7. REFERENCES

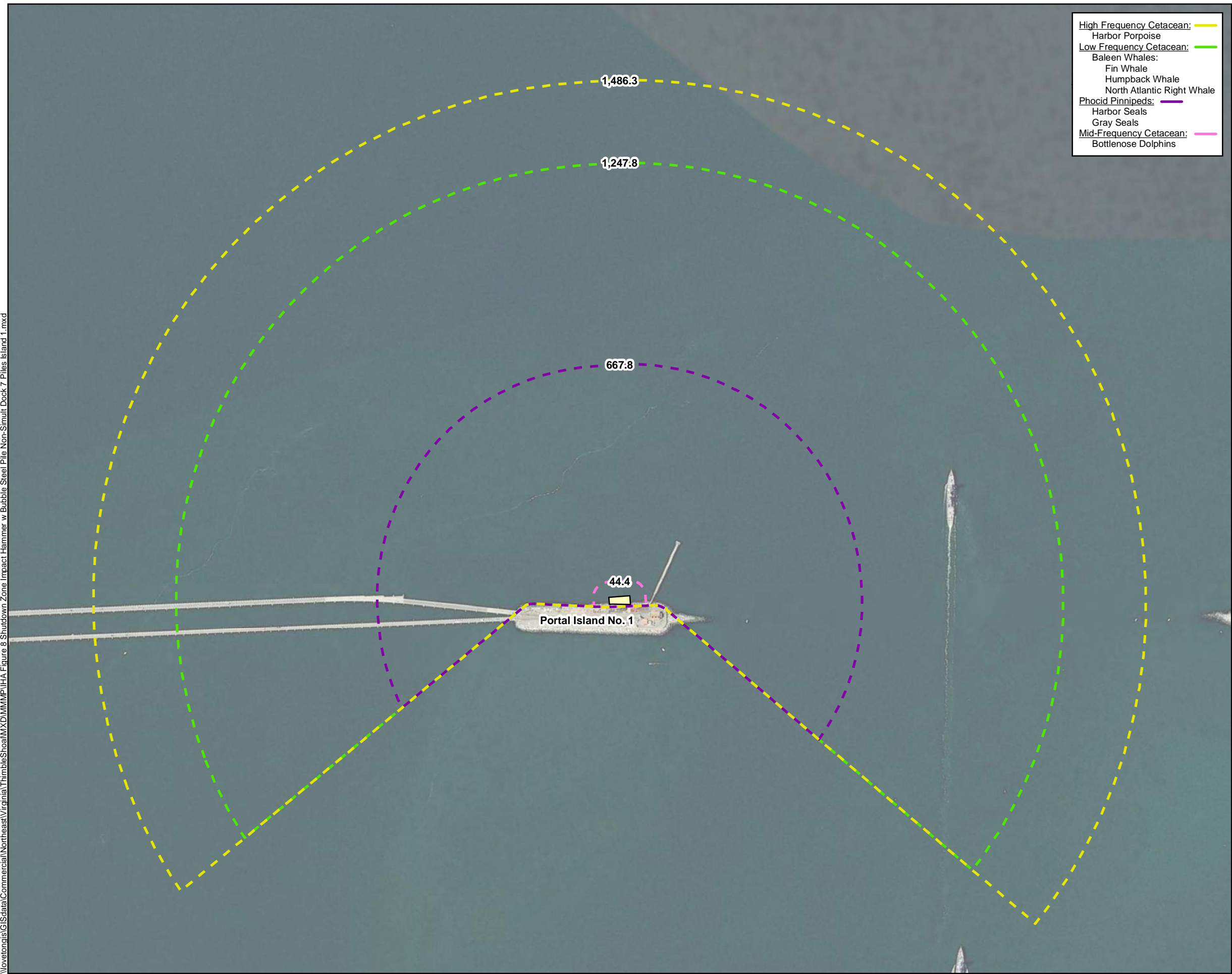
NOAA. 2016. Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. Technical Memorandum NMFS-OPR-55.



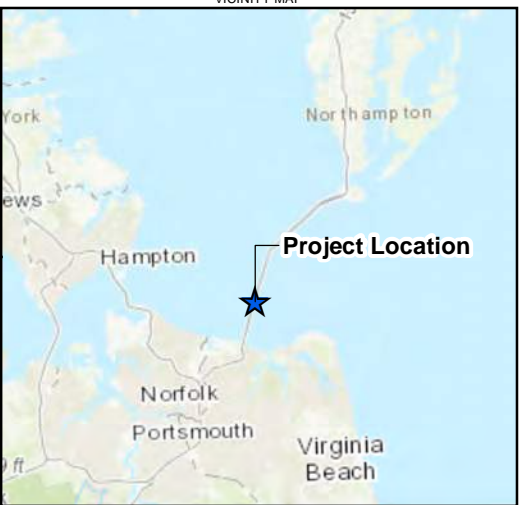
**Figure 1. Project Location Map
Chesapeake Bay Bridge and Tunnel District
Thimble Shoal Parallel Tunnel**



\\lovetongis\GIS\data\Commercial\Northeast\Virginia\Thimble Shoal\MXD\MMMP\IHA Figure 8 Shutdown Zone Impact Hammer w Bubble Curtain Non-Simult Dock 7 Piles Island 1.mxd



- High Frequency Cetacean:
 - Harbor Porpoise
- Low Frequency Cetacean:
 - Baleen Whales:
 - Fin Whale
 - Humpback Whale
 - North Atlantic Right Whale
- Phocid Pinnipeds:
 - Harbor Seals
 - Gray Seals
- Mid-Frequency Cetacean:
 - Bottlenose Dolphins



Legend

- Temporary Dock
- 7 Impact Piles per Day - Shutdown Zone**
 - 1,486.3 m - High-Frequency Cetaceans
 - 1,247.8 m - Low-Frequency Cetaceans
 - 667.8 m - Phocid Pinnipeds
 - 44.4 m - Mid-Frequency Cetaceans

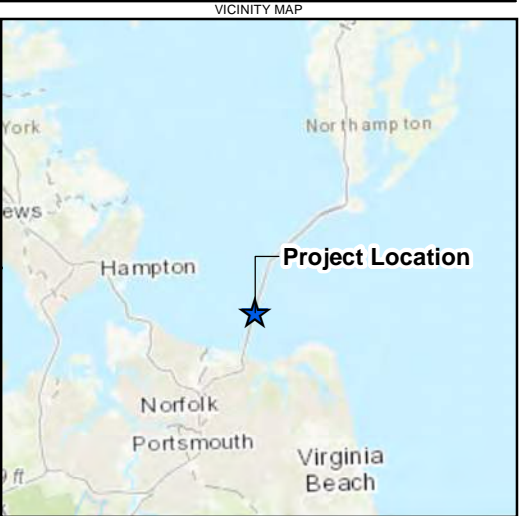
Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

0 200 400
Meters



Figure 1
Distance (meters) to Shutdown Zone
Using an Impact Hammer
with Bubble Curtain for
Non-Simultaneous
36- and 42-in Steel Pile Driving for the
Temporary Dock
– 7 Piles per Day
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\novetongis\GIS\data\Commercial\Northeast\Virginia\Thimble Shoal\MXD\MMMP\IHA Figure 9 Shutdown Zone Vibratory Hammer Timber Pile Non-Simult Mooring Dolphins 10 Piles Island 1 and 2.mxd



Legend

- ⊗ Mooring Dolphin
- 10 Vibratory Piles per Day - Shutdown Zone**
- 7.4 m - High-Frequency Cetaceans
- 5.0 m - Low-Frequency Cetaceans
- 3.0 m - Phocid Pinnipeds
- 0.4 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

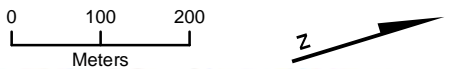
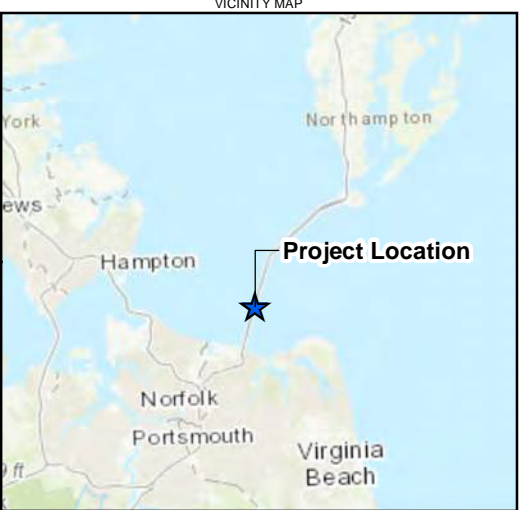


Figure 2
Distance (meters) to Shutdown Zone
Using a Vibratory Hammer for
Non-Simultaneous
Timber Pile Driving for the
Mooring Dolphins
– 10 Piles per Day
at Portal Island Nos. 1 and 2
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovebond\GISData\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 10 Shutdown Zone Vibratory Hammer Steel Pile Non-Simult Dock 10 Piles Island 1 and 2.mxd



- High Frequency Cetacean:
Harbor Porpoise
- Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
- Phocid Pinnipeds:
Harbor Seals
Gray Seals
- Mid-Frequency Cetacean:
Bottlenose Dolphins



Legend

- Temporary Dock
- 10 Vibratory Piles per Day - Shutdown Zone**
- 63.8 m - High-Frequency Cetaceans
- 43.2 m - Low-Frequency Cetaceans
- 26.2 m - Phocid Pinnipeds
- 3.8 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

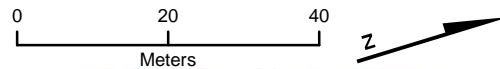
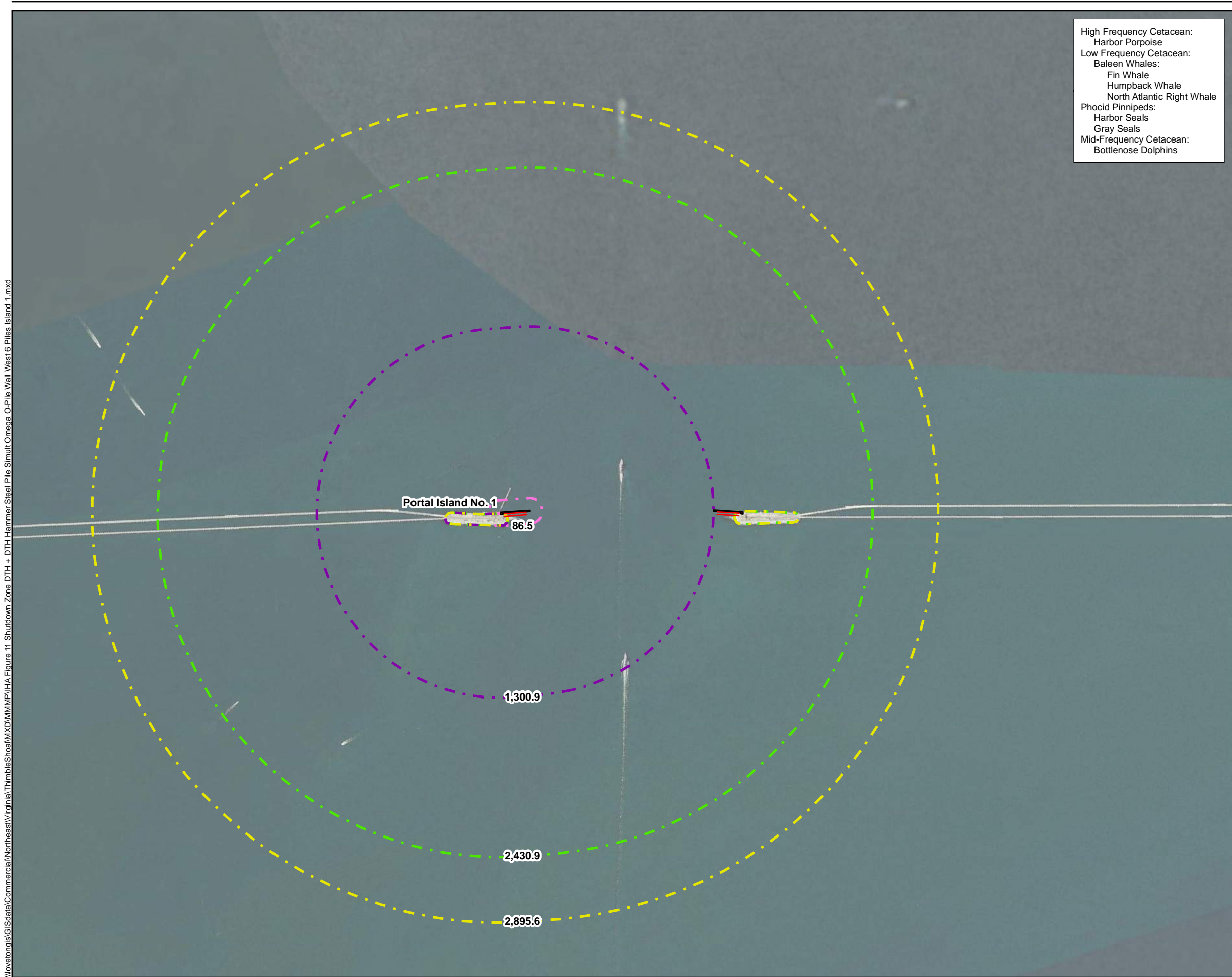
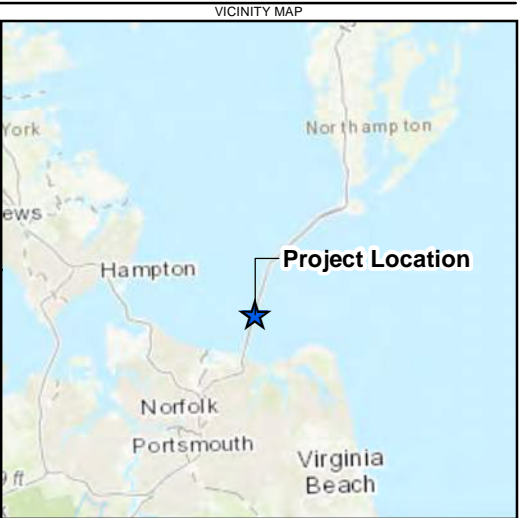


Figure 3
Distance (meters) to Shutdown Zone
Using a Vibratory Hammer for
Non-Simultaneous
36- and 42-in Steel Pile Driving for the
Temporary Dock
– 10 Piles per Day
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\HA Figure 11 Shutdown Zone DTH + DTH Hammer Steel Pile Simult Omega O-Pile Wall West 6 Piles Island 1.mxd



- High Frequency Cetacean:
Harbor Porpoise
Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Phocid Pinnipeds:
Harbor Seals
Gray Seals
Mid-Frequency Cetacean:
Bottlenose Dolphins



Legend

- O-Pile Wall
■ Omega Trestle
6 Down-the-Hole Piles per Day - Shutdown Zone
--- 2,895.6 m - High-Frequency Cetaceans
--- 2,430.9 m - Low-Frequency Cetaceans
--- 1,300.9 m - Phocid Pinnipeds
--- 86.5 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2017, Mott MacDonald 2017
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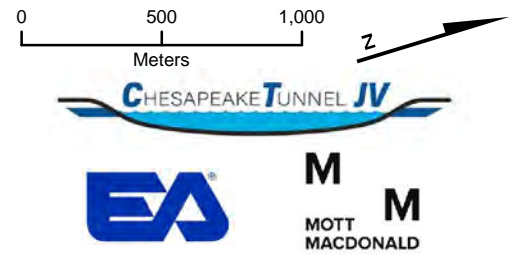
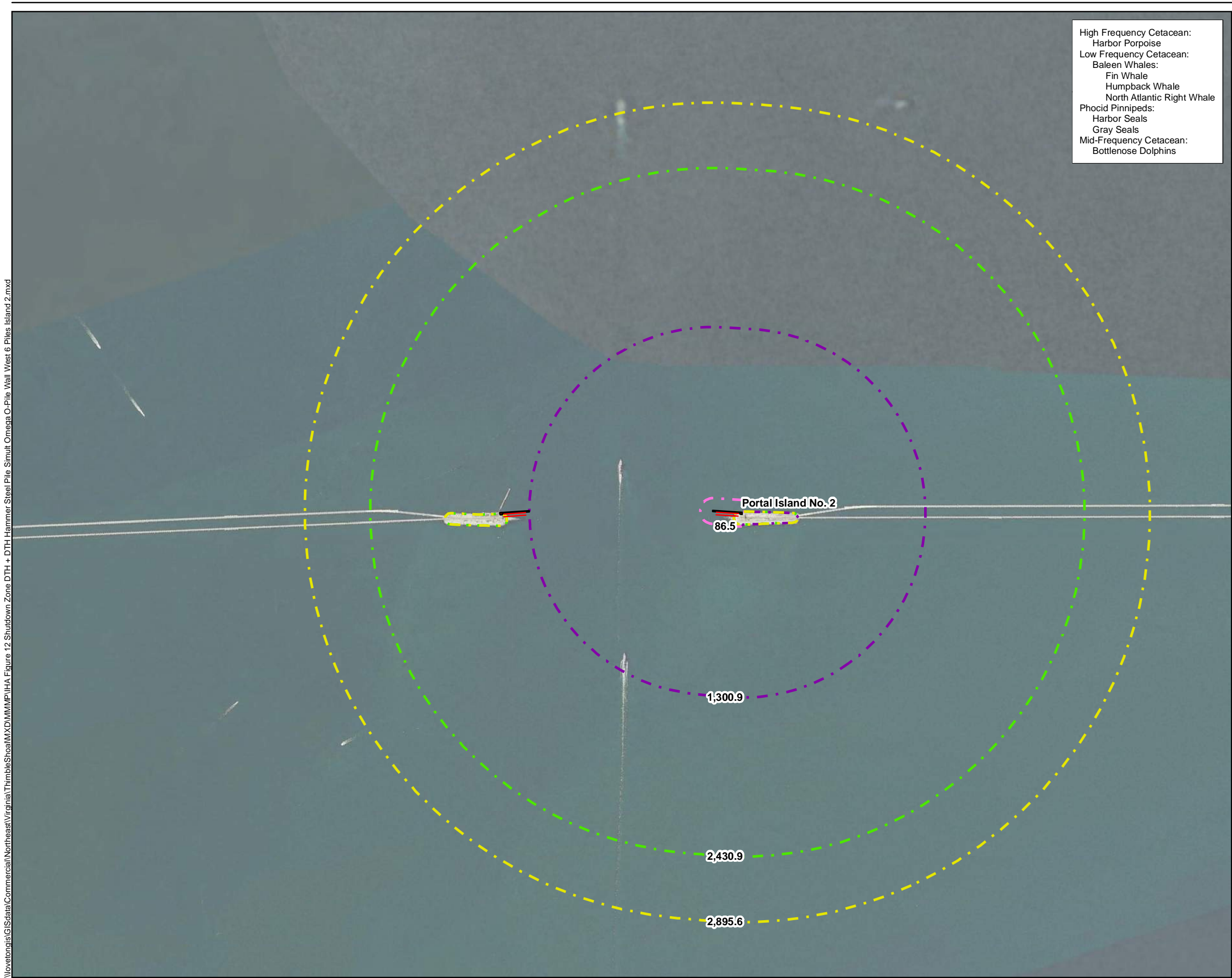


Figure 4
Distance (meters) to Shutdown Zone
Using Two Down-the-Hole Hammers for
Simultaneous
36- and 42-in Steel Pile Driving for the
Omega Trestle/West O-Pile Wall/
Mooring Piles and Templates
– 6 Piles per Day
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 12 Shutdown Zone DTH + DTH Hammer Steel Pile Simult Omega O-Pile Wall West 6 Piles Island 2.mxd



- High Frequency Cetacean:
Harbor Porpoise
Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Phocid Pinnipeds:
Harbor Seals
Gray Seals
Mid-Frequency Cetacean:
Bottlenose Dolphins



- Legend**
- O-Pile Wall
 - Omega Trestle
 - 6 Down-the-Hole Piles per Day - Shutdown Zone**
 - 2,895.6 m - High-Frequency Cetaceans
 - 2,430.9 m - Low-Frequency Cetaceans
 - 1,300.9 m - Phocid Pinnipeds
 - 86.5 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2017, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

0 500 1,000
Meters

CHESAPEAKE TUNNEL JV

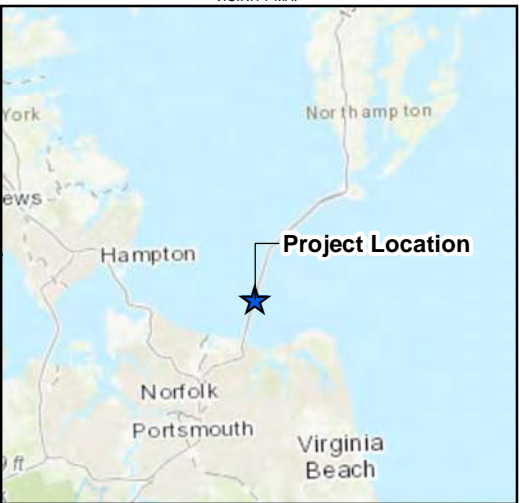
EA **M M**
MOTT MACDONALD

Figure 5
Distance (meters) to Shutdown Zone
Using Two Down-the-Hole Hammers for
Simultaneous
36- and 42-in Steel Pile Driving for the
Omega Trestle/West O-Pile Wall/
Mooring Piles and Templates
– 6 Piles per Day
at Portal Island No. 2
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\HA Figure 13 Shutdown Zone DTH + DTH Hammer Steel Pile Simult O-Pile Wall East 6 Piles Island 1.mxd



- High Frequency Cetacean:
Harbor Porpoise
Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Phocid Pinnipeds:
Harbor Seals
Gray Seals
Mid-Frequency Cetacean:
Bottlenose Dolphins



Legend

- O-Pile Wall
■ Omega Trestle
6 Down-the-Hole Piles per Day - Shutdown Zone
--- 2,895.6 m - High-Frequency Cetaceans
--- 2,430.9 m - Low-Frequency Cetaceans
--- 1,300.9 m - Phocid Pinnipeds
--- 86.5 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2017, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

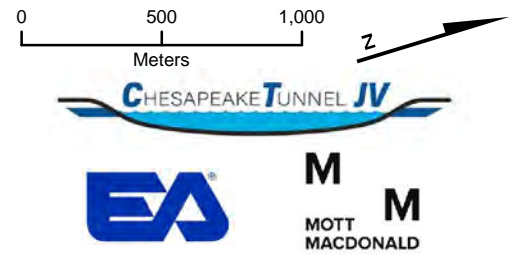
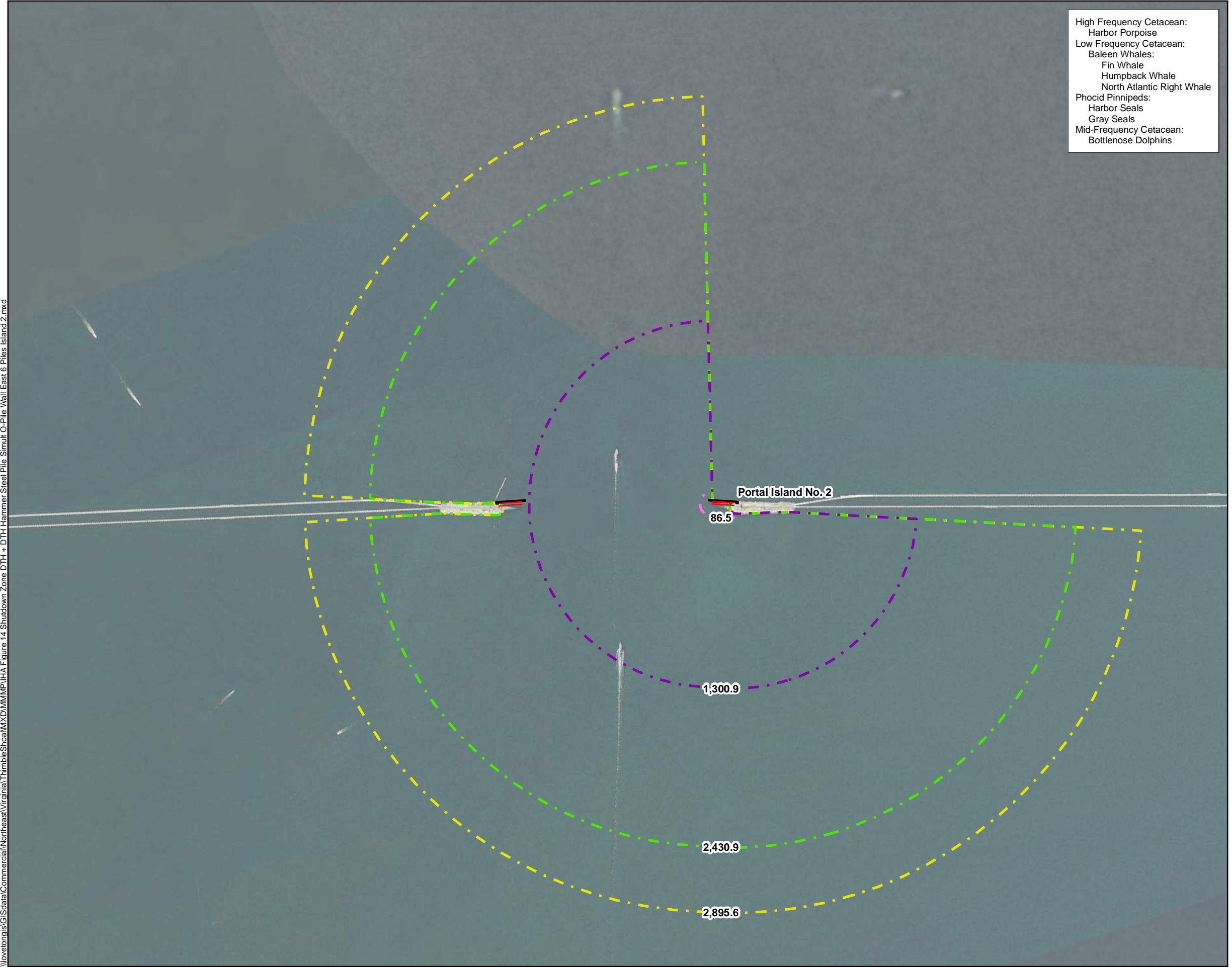
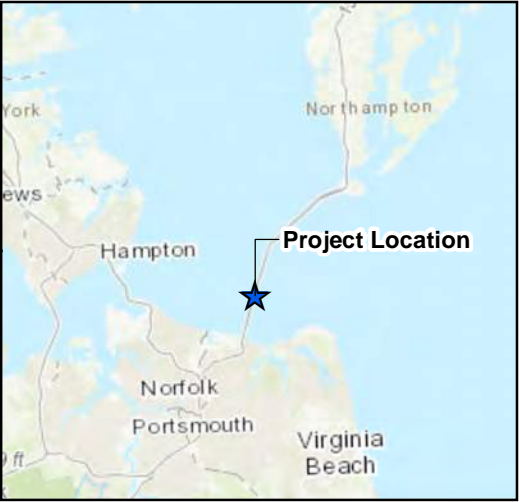


Figure 6
Distance (meters) to Shutdown Zone
Using Two Down-the-Hole Hammers for
Simultaneous
36- and 42-in Steel Pile Driving for the
East O-Pile Wall
– 6 Piles per Day
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 14 Shutdown Zone DTH + DTH Hammer Steel Pile Simult O-Pile Wall East 6 Piles Island 2.mxd



- High Frequency Cetacean:
Harbor Porpoise
- Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
- Phocid Pinnipeds:
Harbor Seals
Gray Seals
- Mid-Frequency Cetacean:
Bottlenose Dolphins



- Legend**
- O-Pile Wall
 - Omega Trestle
 - 6 Down-the-Hole Piles per Day - Shutdown Zone**
 - 2,895.6 m - High-Frequency Cetaceans
 - 2,430.9 m - Low-Frequency Cetaceans
 - 1,300.9 m - Phocid Pinnipeds
 - 86.5 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2017, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

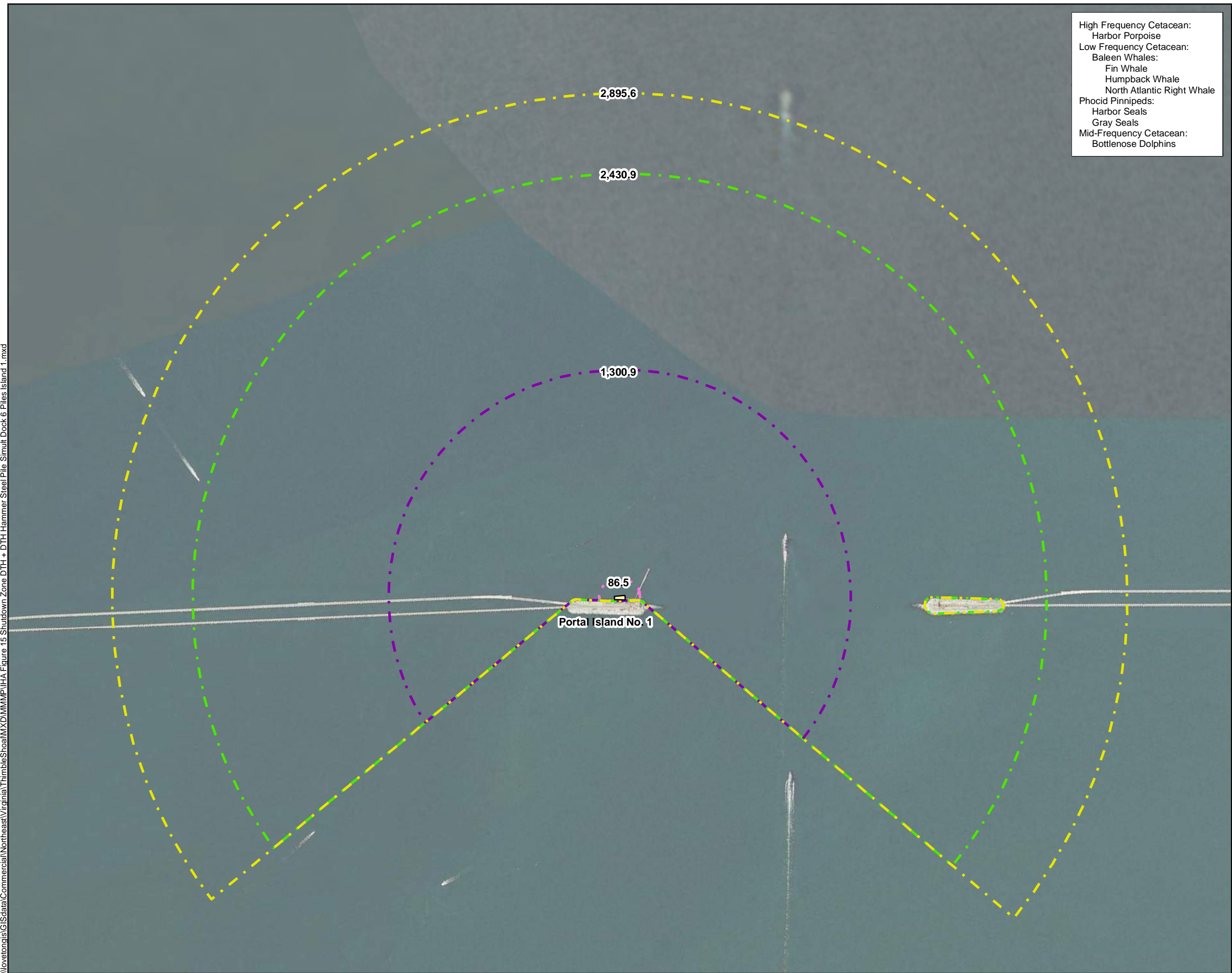
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Meters

CHESAPEAKE TUNNEL JV

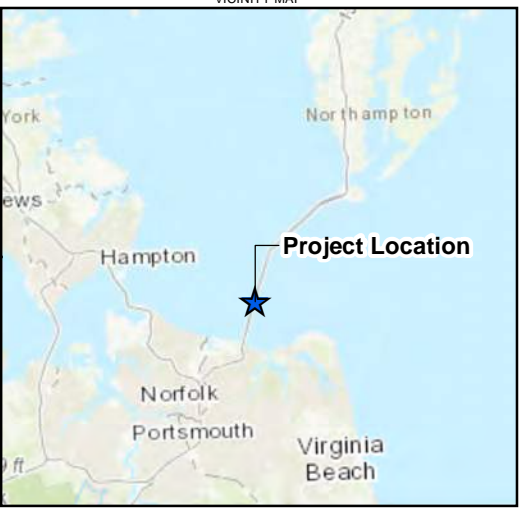
EA **M M**
MOTT MACDONALD

Figure 7
Distance (meters) to Shutdown Zone
Using Two Down-the-Hole Hammers for
Simultaneous
36- and 42-in Steel Pile Driving for the
East O-Pile Wall
– 6 Piles per Day
at Portal Island No. 2
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GIS\data\Commercial\Northeast\Virginia\Thimble Shoal\MXD\MMMP\IHA Figure 15 Shutdown Zone DTH + DTH Hammer Steel Pile Simult Dock 6 Piles Island 1.mxd



- High Frequency Cetacean:
Harbor Porpoise
Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Phocid Pinnipeds:
Harbor Seals
Gray Seals
Mid-Frequency Cetacean:
Bottlenose Dolphins



Legend

- Temporary Dock
- 6 Down-the-Hole Piles per Day - Shutdown Zone**
- 2,895.6 m - High-Frequency Cetaceans
 - 2,430.9 m - Low-Frequency Cetaceans
 - 1,300.9 m - Phocid Pinnipeds
 - 86.5 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

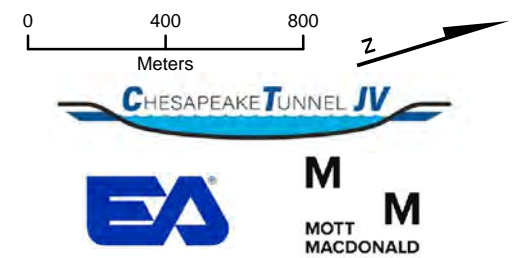
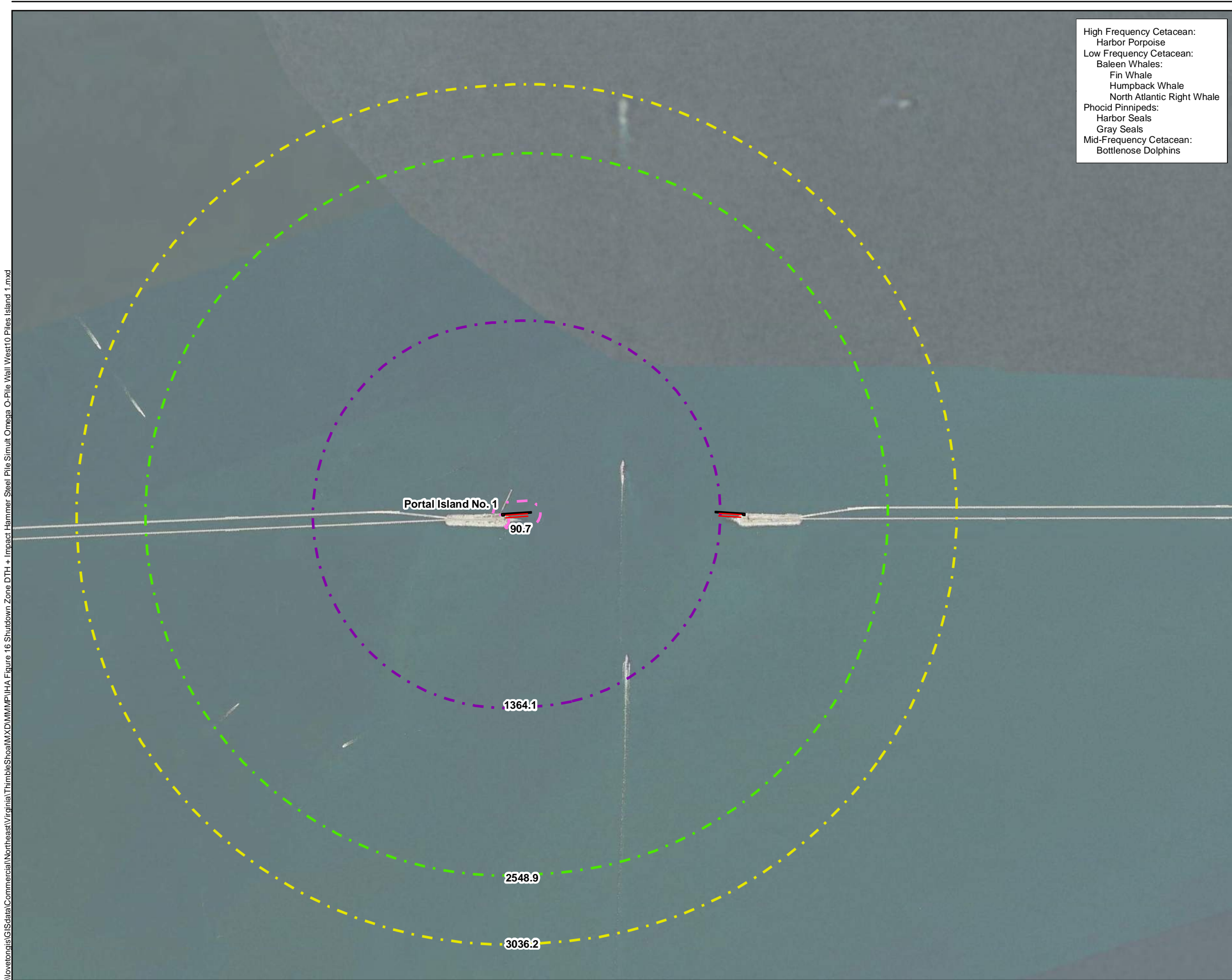
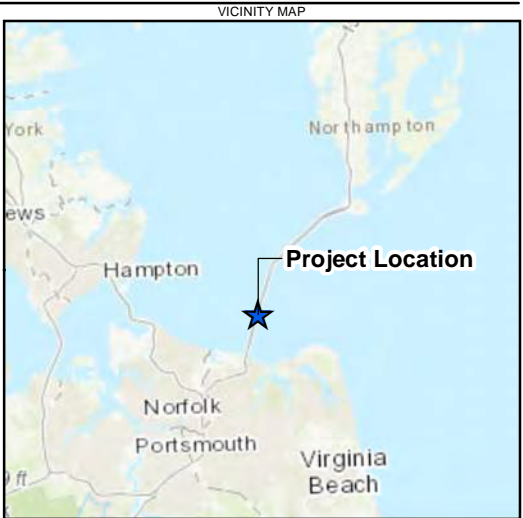


Figure 8
Distance (meters) to Shutdown Zone
Using Two Down-the-Hole Hammers for
Simultaneous
36- and 42-in Steel Pile Driving for the
Temporary Dock
– 6 Piles per Day
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 16 Shutdown Zone DTH + Impact Hammer Steel Pile Simult Omega O-Pile Wall West10 Piles Island 1.mxd



- High Frequency Cetacean:
Harbor Porpoise
Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Phocid Pinnipeds:
Harbor Seals
Gray Seals
Mid-Frequency Cetacean:
Bottlenose Dolphins



Legend

- O-Pile Wall
■ Omega Trestle
3 Down-the-Hole and 10 Impact Piles per Day - Shutdown Zone
--- 3036.2 m - High-Frequency Cetaceans
--- 2548.9 m - Low-Frequency Cetaceans
--- 1364.1 m - Phocid Pinnipeds
--- 90.7 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2017, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

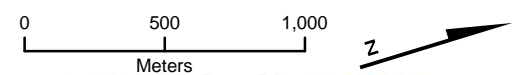
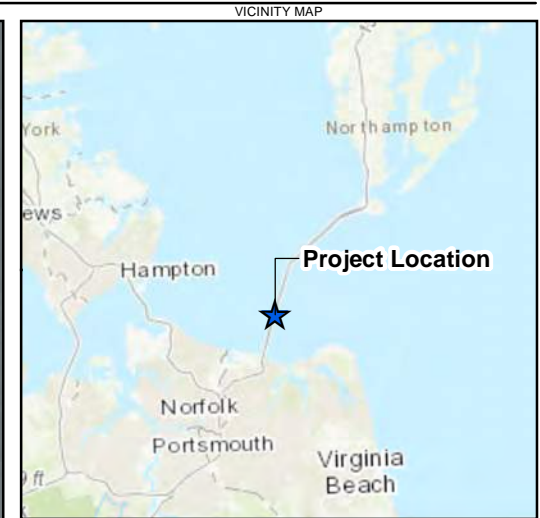
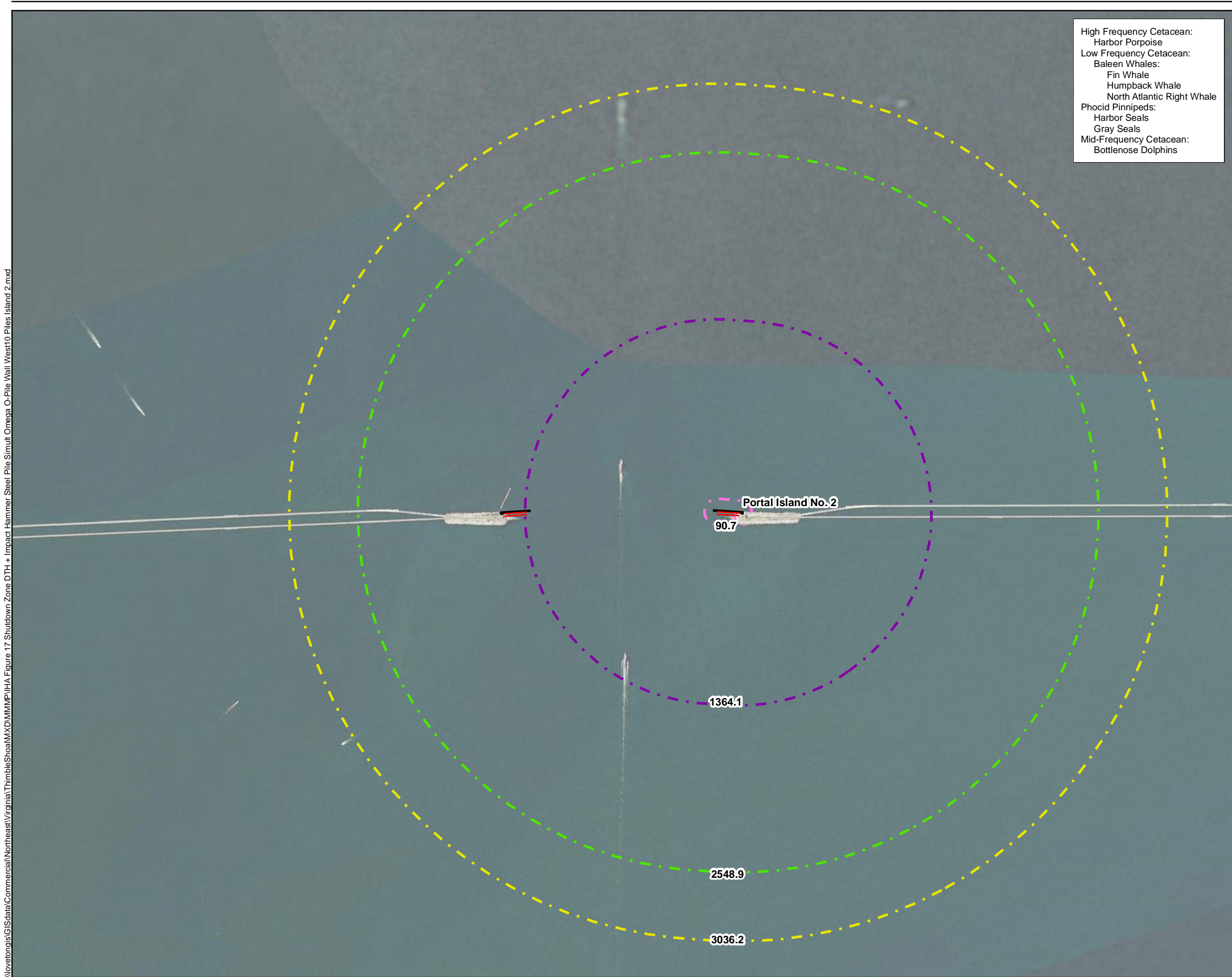


Figure 9
Distance (meters) to Shutdown Zone
Using a Down-the-Hole and Impact
Hammers for Simultaneous
36- and 42-in Steel Pile Driving for the
Omega Trestle/West O-Pile Wall/
Mooring Piles and Templates
– 3 DTH and 10 Piles per Day
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 17 Shutdown Zone DTH + Impact Hammer Steel Pile Simult Omega O-Pile Wall West10 Piles Island 2.mxd



Legend

— O-Pile Wall

■ Omega Trestle

3 Down-the-Hole and 10 Impact Piles per Day - Shutdown Zone

3036.2 m - High-Frequency Cetaceans

2548.9 m - Low-Frequency Cetaceans

1364.1 m - Phocid Pinnipeds

90.7 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2017, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

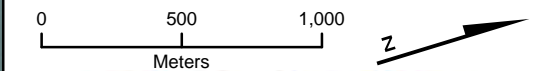
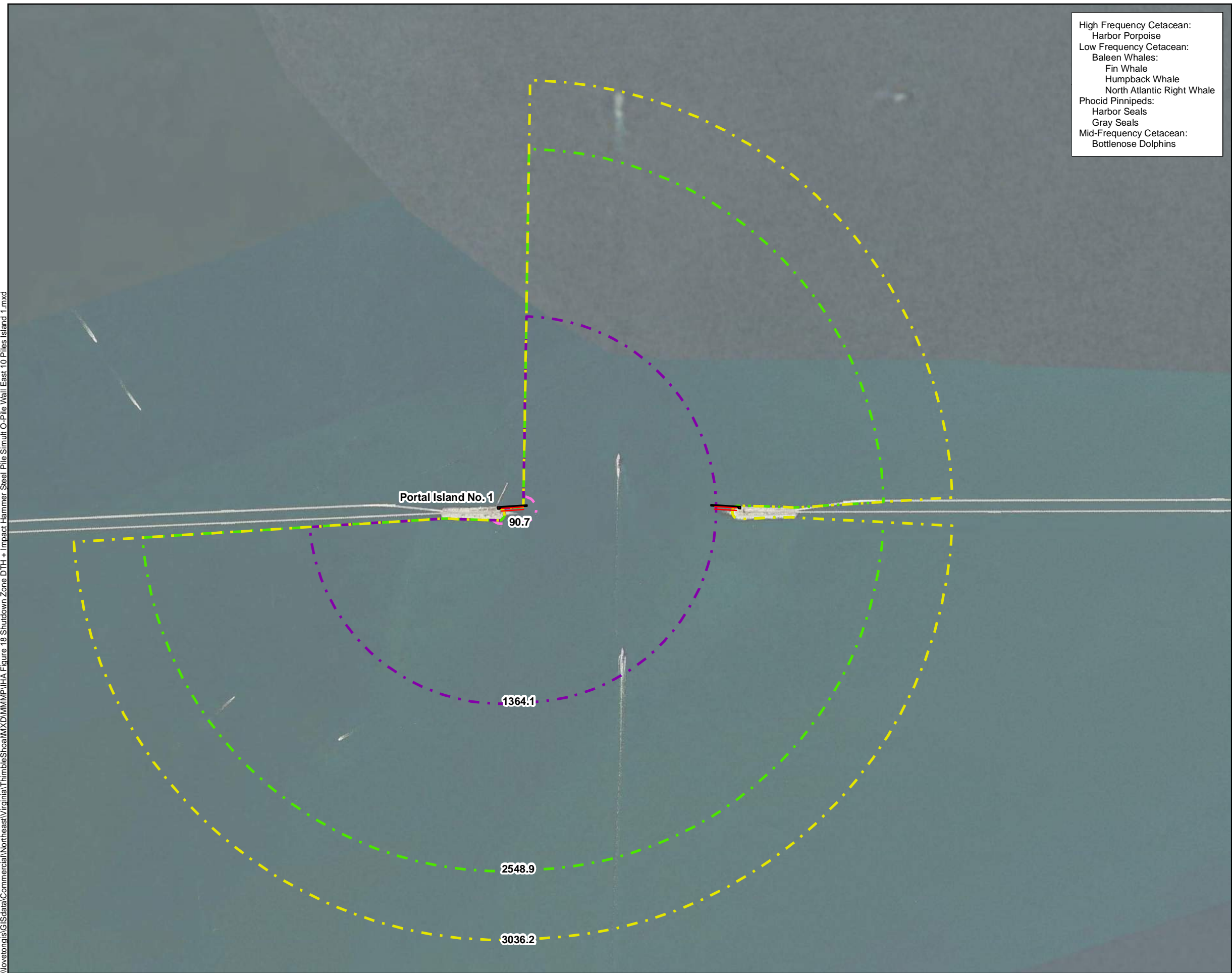
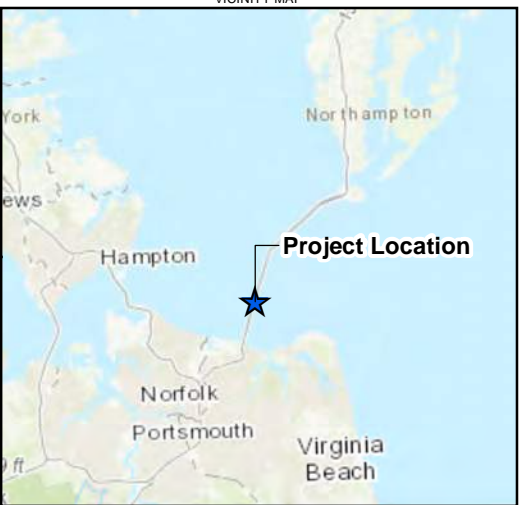


Figure 10
Distance (meters) to Shutdown Zone
Using a Down-the-Hole and Impact
Hammers for Simultaneous
36- and 42-in Steel Pile Driving for the
Omega Trestle/West O-Pile Wall/
Mooring Piles and Templates
– 3 DTH and 10 Piles per Day
at Portal Island No. 2
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 18 Shutdown Zone DTH + Impact Hammer Steel Pile Simult O-Pile Wall East 10 Piles Island 1.mxd



- High Frequency Cetacean:
Harbor Porpoise
Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Phocid Pinnipeds:
Harbor Seals
Gray Seals
Mid-Frequency Cetacean:
Bottlenose Dolphins



Legend

- O-Pile Wall
■ Omega Trestle
3 Down-the-Hole and 10 Impact Piles per Day - Shutdown Zone
--- 3036.2 m - High-Frequency Cetaceans
--- 2548.9 m - Low-Frequency Cetaceans
--- 1,364.1 m - Phocid Pinnipeds
--- 90.7 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2017, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

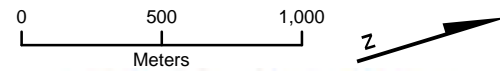
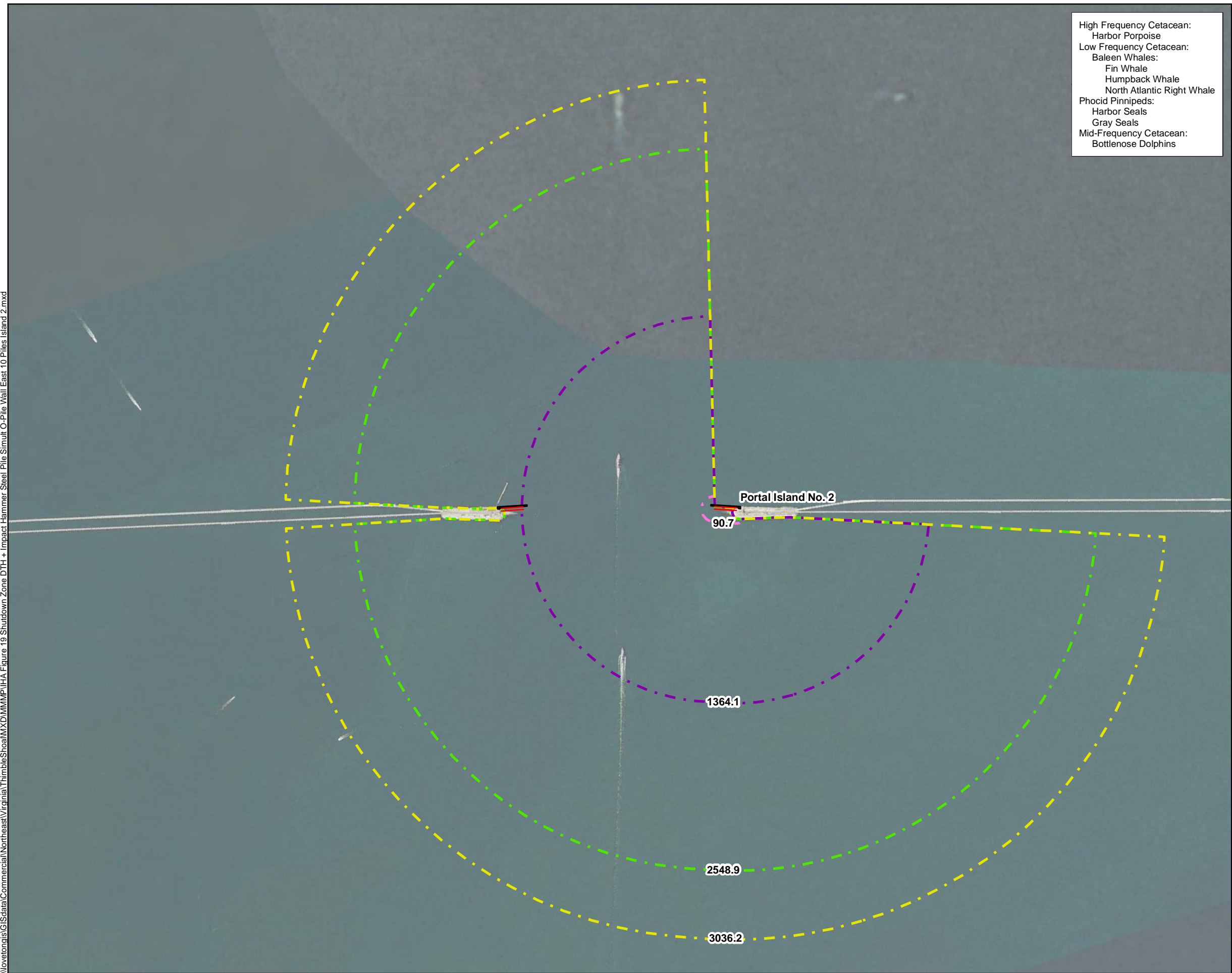
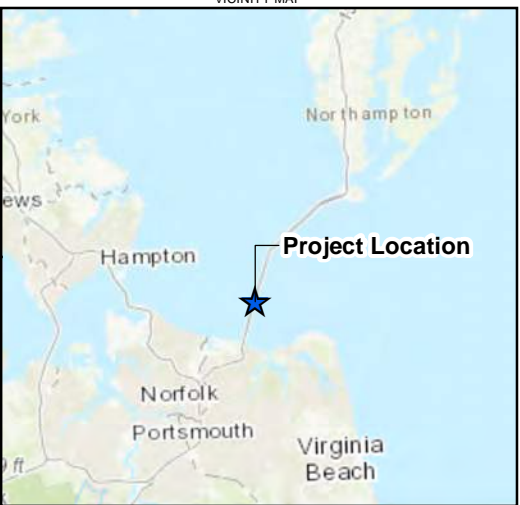


Figure 11
Distance (meters) to Shutdown Zone
Using a Down-the-Hole and Impact
Hammers for Simultaneous
36- and 42-in Steel Pile Driving for the
East O-Pile Wall
– 3 DTH and 10 Impact Piles per Day
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 19 Shutdown Zone DTH + Impact Hammer Steel Pile Simult O-Pile Wall East 10 Piles Island 2.mxd



- High Frequency Cetacean:
Harbor Porpoise
Low Frequency Cetacean:
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Phocid Pinnipeds:
Harbor Seals
Gray Seals
Mid-Frequency Cetacean:
Bottlenose Dolphins



Legend

- O-Pile Wall
■ Omega Trestle
3 Down-the-Hole and 10 Impact Piles per Day - Shutdown Zone
--- 3036.2 m - High-Frequency Cetaceans
--- 2548.9 m - Low-Frequency Cetaceans
--- 1364.1 m - Phocid Pinnipeds
--- 90.7 m - Mid-Frequency Cetaceans

Map Date: 10/3/2019
Source: ESRI 2017, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

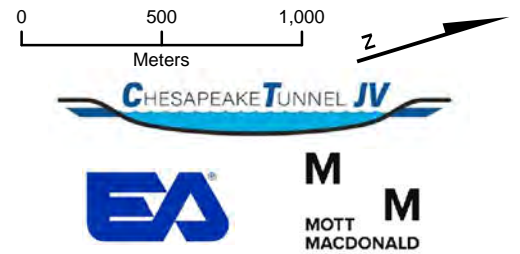


Figure 12
Distance (meters) to Shutdown Zone
Using a Down-the-Hole and Impact
Hammers for Simultaneous
36- and 42-in Steel Pile Driving for the
East O-Pile Wall
– 3 DTH and 10 Impact Piles per Day
at Portal Island No. 2
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GISdata\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 28 Level B Impact Hammer w Bubble Steel Pile Non-Simult Dock Island 1.mxd



- Cetaceans and Pinnipeds:**
- Harbor Porpoise
 - Baleen Whales:**
 - Fin Whale
 - Humpback Whale
 - North Atlantic Right Whale
 - Bottlenose Dolphins
 - Harbor Seals
 - Gray Seals



- Legend**
- Temporary Dock
 - Impact Pile - Level B**
 - 1,584.9 m - Cetaceans and Pinnipeds
 - Impact Pile with Bubble Curtain - Level B**
 - 541.2 m - Cetaceans and Pinnipeds

Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

0 200 400
Meters

CHESAPEAKE TUNNEL JV
EA
MOTT MACDONALD

Figure 13
Distance (meters) to Level B Threshold
Using an Impact Hammer or
Impact Hammer with Bubble Curtain for
Non-Simultaneous
36- and 42-in Steel Pile Driving for the
Temporary Dock
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GIS\data\Commercial\Northeast\Virginia\Thimble Shoal\MXD\MMMP\IHA Figure 30 Level B Impact Hammer Vibratory Hammer Timber Pile Non-Simult Mooring Dolphins Island 1 and 2.mxd



- Cetaceans and Pinnipeds:**
- Harbor Porpoise
 - Baleen Whales:**
 - Fin Whale
 - Humpback Whale
 - North Atlantic Right Whale
 - Bottlenose Dolphins
 - Harbor Seals
 - Gray Seals



Legend

- ⊗ Mooring Dolphin
- Impact Pile - Level B**
 - 21.5 m - Cetaceans and Pinnipeds
- Vibratory Pile - Level B**
 - 1,359.4 m - Cetaceans and Pinnipeds

Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

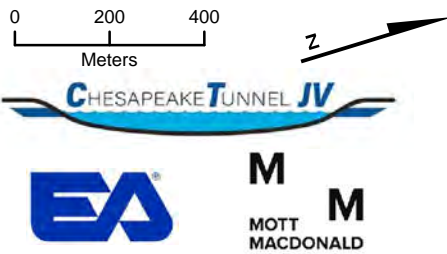
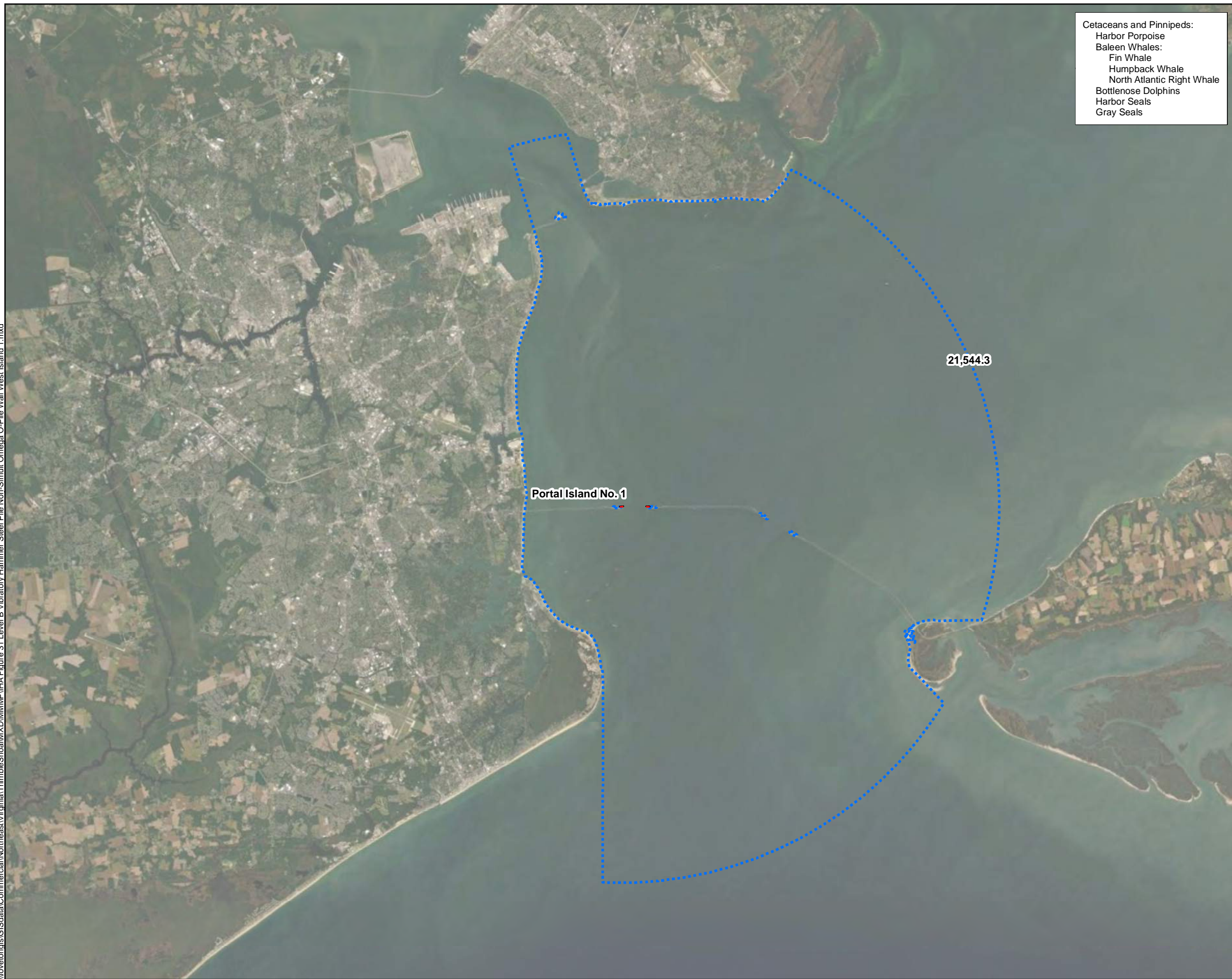
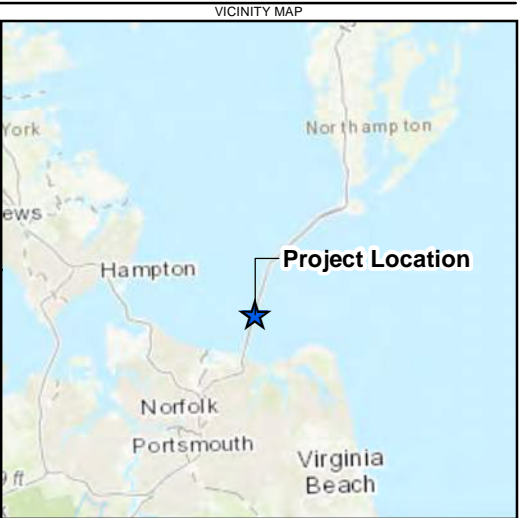


Figure 14
Distance (meters) to Level B Threshold
Using an Impact Hammer or
Vibratory Hammer for
Non-Simultaneous
Timber Pile Driving for the
Mooring Dolphins
at Portal Island Nos. 1 and 2
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GIS\data\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 31 Level B Vibratory Hammer Steel Pile Non-Simult Omega O-Pile Wall West Island 1.mxd



Cetaceans and Pinnipeds:
Harbor Porpoise
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Bottlenose Dolphins
Harbor Seals
Gray Seals



Legend

- O-Pile Wall
- Omega Trestle
- Vibratory Steel Piles - Level B**
- 21,544.3 m - Cetaceans and Pinnipeds

Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

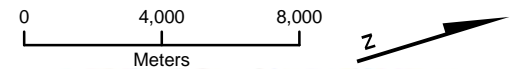
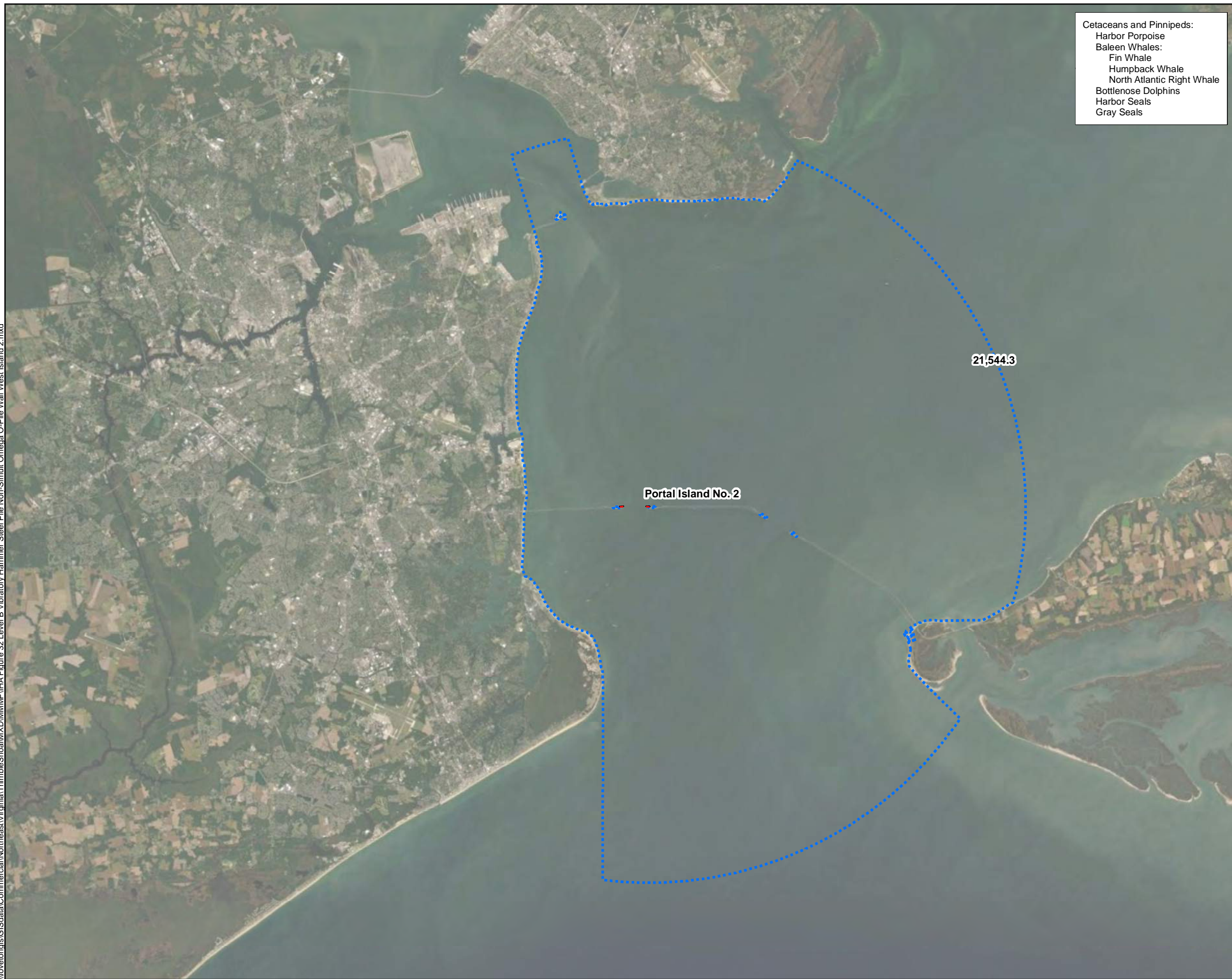


Figure 15
Distance (meters) to Level B Threshold
Using a Vibratory Hammer for
Non-Simultaneous
36- and 42-in Steel Pile Driving for the
Omega Trestle/West O-Pile Wall/
Mooring Piles and Templates
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

\\lovetongis\GIS\data\Commercial\Northeast\Virginia\ThimbleShoal\MXD\MMMP\IHA Figure 32 Level B Vibratory Hammer Steel Pile Non-Simult Omega O-Pile Wall West Island 2.mxd



Cetaceans and Pinnipeds:
Harbor Porpoise
Baleen Whales:
Fin Whale
Humpback Whale
North Atlantic Right Whale
Bottlenose Dolphins
Harbor Seals
Gray Seals



Legend

— O-Pile Wall

■ Omega Trestle

Vibratory Steel Piles - Level B

⋯ 21,544.3 m - Cetaceans and Pinnipeds

Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

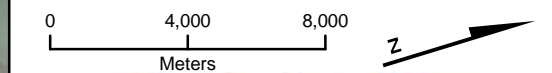
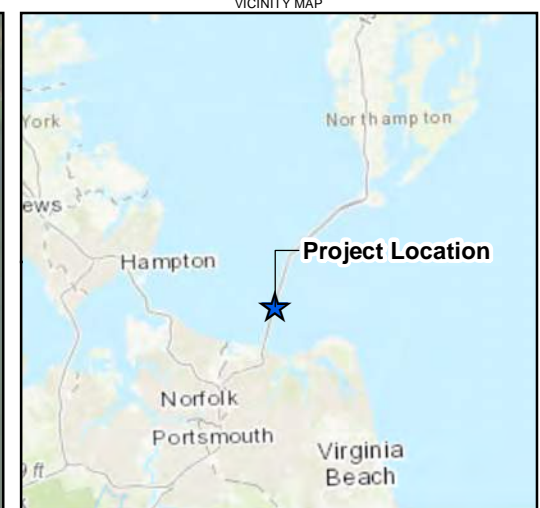
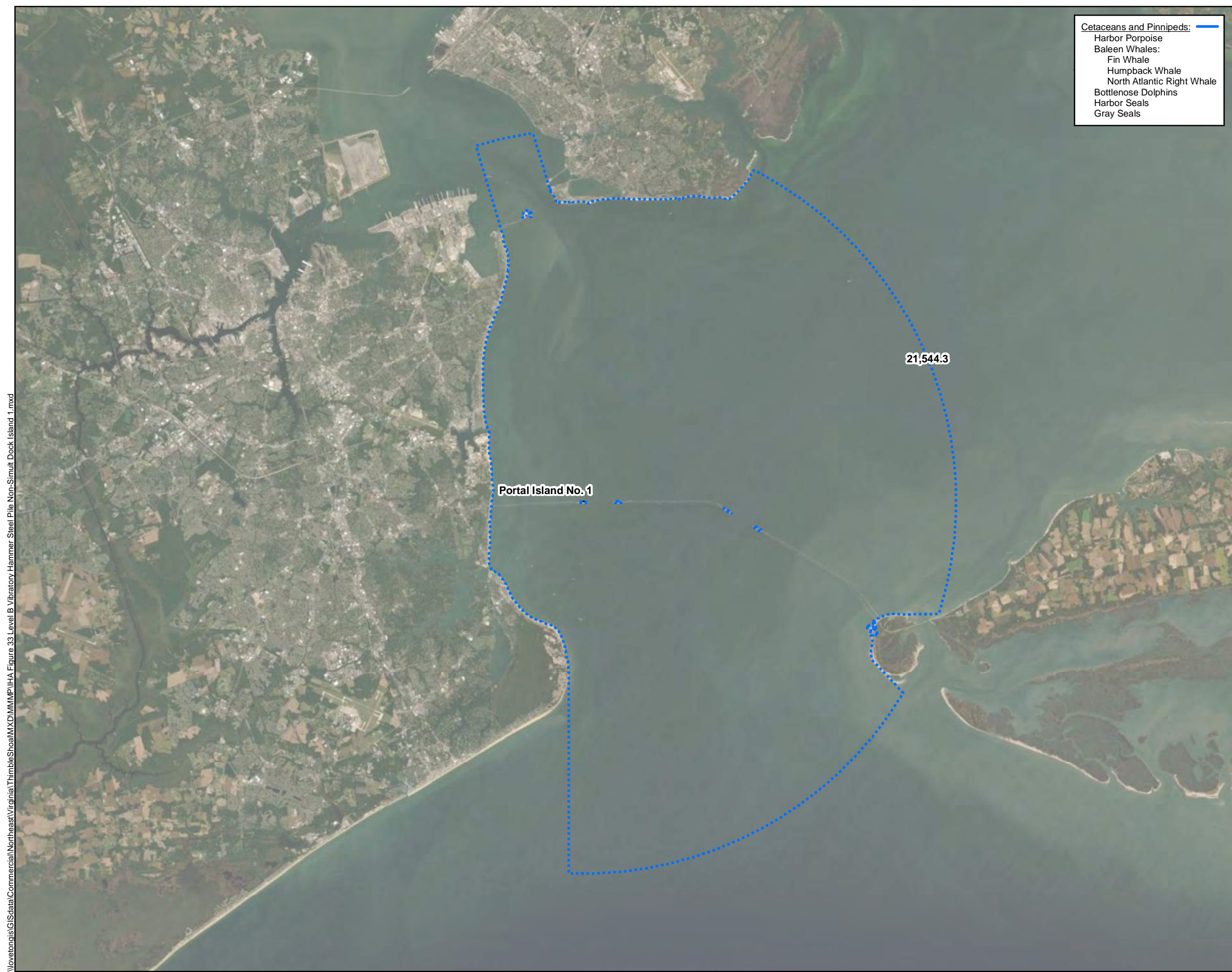


Figure 16
Distance (meters) to Level B Threshold
Using a Vibratory Hammer for
Non-Simultaneous
36- and 42-in Steel Pile Driving for the
Omega Trestle/West O-Pile Wall/
Mooring Piles and Templates
at Portal Island No. 2
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel



Legend

- Temporary Dock
- Vibratory Steel Piles - Level B**
 - 21,544.3 m - Cetaceans and Pinnipeds

Map Date: 10/3/2019
Source: ESRI 2018, Mott MacDonald 2017
Projection: NAD 1983, State Plane Virginia South, US Feet

0 4,000 8,000
Meters

CHESAPEAKE TUNNEL JV

EA **M M**
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Figure 17
Distance (meters) to Level B Threshold
Using a Vibratory Hammer for
Non-Simultaneous
36- and 42-in Steel Pile Driving for the
Temporary Dock
at Portal Island No. 1
Marine Mammal Protection Act
Parallel Thimble Shoal Tunnel

Appendix B:

Daily Protected Species Sighting & Shut- Down Forms



Daily Marine Mammal Observer Report

Contractor: CTJV / Dragados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: IHA March 2020		Observer Location (Island #): <u>Island 2</u>	
Date: <u>11/25/20</u>		Shift Start: <u>0630</u>	
Sunrise: <u>0655</u> Sunset: <u>1650</u>		Shift End: <u>1219</u>	

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 2	0800	50.7	54.9	Good	40%	1.0	7Kts SSW	0%	3

Observer Log

Time	Notes (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
0658	Arrive Island 2
0725	Begin watch
0820	Begin drilling
0914	Stopped
0945	Continued
0947	Delphinus spotted traveling S then through channel ~ 300m from pile
1040	Stopped for maintenance
1123	Continued drilling
1149	Finished drilling pile
1219	End watch, no sightings. Leave Island 2

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
0947	Tursiops truncatus	~10	10	0	300m	Traveling	No	0	0	0949

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
Tursiops truncatus	10	0	0	0	

Observer Names:

Nichole Pierce

Protected Species Sighting & Shut-Down Form

Corresponding sighting # for the day: 8
Shutdown: _____ for the day

2 of 2

Date (DD/MM/YYYY): 25/11/20 Time of Initial Sighting 0947 Time Animals Left Area: 0949

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. Island 2

Areas Observed: W of pile driving Upland Pile Driving X In-Water Pile Driving _____

Air Temp: 52°F Water Temp: 55.2°F Wave Height 0.7 ft Beaufort Sea State 2

Weather Conditions: Cloudy, slight breeze

Percent Cloud Cover: 90% Percent Glare: 0% Visibility Issues: None

Animal Location & Distance to Pile Driving: W of Island 2, traveling S, ~ 300 m out

Type of Pile Driving DTH

Distance From Observer When Initially Observed: 350 m

Species Observed: Tursiops truncatus - Bottlenose dolphin

Number of Animals Sighted (include age classes): Estimated about 10 adults

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Traveling

Animal Heading/Direction: S along Island 2, then into channel between Island 1 & 2

Human Activities in Area: One large tanker, one tug boat, 3 small fishing boats

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: 8

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph: _____

Notes: An estimated pod of about 10 dolphins briefly surfaced along Island 2 as they traveled south towards Island 1, then turned into the channel. They were not spotted again after passing fishing boats at entrance of channel

REMSA, Inc.
124 W. Queens Way
Hampton, VA 23669
(757)722-0113



Nichole Pierce Nichole Pierce
Observer Name / Signature

Protected Species Sighting & Shut-Down Form

Corresponding sighting # for the day: 1
Shutdown: Ø for the day

Date (DD/MM/YYYY): 11/23/20 Time of Initial Sighting 0914 Time Animals Left Area: 1004

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. Island 2

Areas Observed: SW of Island 2 Upland Pile Driving X In-Water Pile Driving

Air Temp: 59.5°F Water Temp: 58.6°F Wave Height 1.0ft Beaufort Sea State 4

Weather Conditions: Sunny, windy

Percent Cloud Cover: 60 Percent Glare: 0 Visibility Issues: White caps as wind speed increased

Animal Location & Distance to Pile Driving: SW of Island 2, approximately 2000m from Island
Type of Pile Driving PTH

Distance From Observer When Initially Observed: 2100m

Species Observed: Humpback Whale (Megaptera novaeangliae)

Number of Animals Sighted (include age classes): 1 juvenile

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Breaching, traveling

Animal Heading/Direction: North

Human Activities in Area: Navy submarine with two police escorts, large cargo ship

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: Ø

Video or Photograph Taken?: (No) Yes

Brief Description of Footage or Photograph:

Notes: One juvenile Humpback spotted at 0914, breaching. The whale slowly moved North, continuing to breach and fin slap. Last seen around 1004, as it became difficult to discern white caps from the blow/fin slap.



Nichole Pierce
Observer Name / Signature



Daily Marine Mammal Observer Report

Contractor: CTJV / Drugados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: IHA March 2020		Observer Location (Island #): Island 2	
Date: 11/23/2020		Shift Start: 0630	
Sunrise: 0652		Sunset: 1651	
		Shift End: 1650	

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 2	0600	59.9	58.1	Good	40%	3ft	12 Kts NNW	0%	4
Island 2	1430	55.9	58.7	Good	10%	3.5 ft	25 Kts N	0%	6

Observer Log

Time	Notes (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
0630	Arrive at yard
0658	Leave yard
0720	Arrive Island 2
0753	Begin watch
0842	Begin drilling
0910	Pause drilling to unload trucks
0914	Humpback whale spotted SW of Island 2, ~2100m
1015	Begin drilling, whale has left the area, heading North
1031	Winds at 23 Kts, gusts up to 27 Kts, cloudy, white caps
1223	End drilling
1405	Begin watch
1458	Begin drilling 2nd pile. Strong winds, white caps
1620	Finish for the day. Will resume in AM. No further sightings
1650	Leave Island 2

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
0914	Humpback whale	1	0	1	2,000m	Breaching Fin slap Traveling	No	0	0	1004

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
Humpback	1	0	0	0	

Observer Names:

Nicole Evans

Nichole Pierce

Protected Species Sighting & Shut-Down Form

pg 2 of 2

Corresponding sighting # for the day: 1
Shutdown: Ø for the day

Date (DD/MM/YYYY): 04/11/2020 Time of Initial Sighting 1505 Time Animals Left Area: 1522

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 2

Areas Observed: West side Upland Pile Driving 1 In-Water Pile Driving

Air Temp: 63 Water Temp: 53 Wave Height 2 ft Beaufort Sea State 2

Weather Conditions: Sunny

Percent Cloud Cover: 5% Percent Glare: 10% Visibility Issues: sun glare off to the left

Animal Location & Distance to Pile Driving: first group 500m from pile second group 150m

Type of Pile Driving upland pile driving

Distance From Observer When Initially Observed: 500m for first group 150m for second group

Species Observed: Bottlenose Dolphins (Tursiops truncatus)

Number of Animals Sighted (include age classes): 14 adults 2 juveniles 16 total

Sex of Animals Observed: unknowns

Animal Behaviors Observed: traveling and feeding

Animal Heading/Direction: west / north west

Human Activities in Area: N/A

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: Ø

Video or Photograph Taken?: (No) Yes

Brief Description of Footage or Photograph: N/A

Notes: Group of six Bottlenose Dolphins sighted 500m from pile driver. First sighted traveling southwest where they stopped at channel edge and milled around then changed directions to travel in a northwest direction. At 1519 first group was then joined by another group of six individuals as they traveled in a northwest direction. All animals then milled about feeding about 1 mile out before traveling beyond visual contact at 1522.

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Erica Wolff

Observer Name / Signature

Nichole Pierce



Daily Marine Mammal Observer Report

Contractor: CTJV / Dragados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: IHA March 2020		Observer Location (Island #):	
Date: 09/17/2020		Shift Start: 0945	
Sunrise: 0650 Sunset: 1907		Shift End: 1751	

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 1	1100	75.0	76.0	Poor	100%	2.0	10.0 KTS SE	Heavy	2
Island 1	1430	70.9	76.0	Fair	100%	4.0	8.9 KTS ENE	Light	4

Observer Log

Time Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)

0945	Arrived at parking lot/Get on van
1012	Arrive on Island
1021	Walk around Island
1050	Start 30 min pre-watch observations
1051	Navy ship traffic traveling West to East
1108	Waiting on survey equipment (weather delay)
1117	Ship traffic (Navy vessel) traveling East to West
1128	Start pile driving
1159	Stop pile driving
1140	Navy ship traffic traveling West to East
1206	Navy ship traffic traveling East to West
1231	Cargo vessel traveling East to West
1312	Start pile driving
1322	Stop pile driving
1349	Cargo vessel traveling East to West
1400	End 30 min post watch
1410	Start 30 min pre watch
1443	Pile driving starts
1451	Tanker traveling East to West
1706	End pile driving
1736	End 30 min post watch
1738	Left Island
1751	Arrive back at parking lot

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
1639	Unidentified Sea turtle	01	01	0	125 m	deceased	NO	N/A	N/A	1644

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
Unidentified Sea turtle	01	0	0	0	deceased carcass floated past work site.

Observer Names: Cassandra Dahl & Sabrina Dahl

Protected Species Sighting & Shut-Down Form

Corresponding sighting # for the day: 1
 Shutdown: N/A for the day

Date (DD/MM/YYYY): 09-17-2020 Time of Initial Sighting 1639 Time Animals Left Area: 1644

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: South of Pier Upland Pile Driving In-Water Pile Driving X

Air Temp: 70.9 Water Temp: 76.0 Wave Height 4.0 Beaufort Sea State 4

Weather Conditions: cloudy, light rain at time of incident

Percent Cloud Cover: 100 Percent Glare: 10 Visibility Issues: Fog

Animal Location & Distance to Pile Driving: 125 meters

Type of Pile Driving DTH

Distance From Observer When Initially Observed: 20 meters

Species Observed: Sea Turtle Unidentified

Number of Animals Sighted (include age classes): 1

Sex of Animals Observed: unknown

Animal Behaviors Observed: Deceased and floating

Animal Heading/Direction: South towards Chic's Beach

Human Activities in Area: Navy Ship traffic and recreational anglers

Shutdown Information

Time Begin:	<u>N/A</u>
Time End:	<u>N/A</u>
Total Down Time (mins):	<u>N/A</u>

Shutdown # for the day: N/A

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph: Zoomed in iPhone photo of carcass floating at surface

Notes: large wound on dorsal forward carapace, possibly a strike noticeably decayed floating south from pier towards Chic's Beach. Stranding team notified, carcass floated out of work site unaffected

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Sabrina Dahl
 Observer Name / Signature
Cassandra Dahl

Sabrina Dahl
[Signature]

Protected Species Sighting & Shut-Down Form

Corresponding sighting # for the day: 1 2/2
 Shutdown: N/A for the day

Date (DD/MM/YYYY): 22/08/2020 Time of Initial Sighting 11/2 Time Animals Left Area: 1122

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: North + East of Island 1 Upland Pile Driving In-Water Pile Driving

Air Temp: Water Temp: Wave Height Beaufort Sea State

Weather Conditions:

Percent Cloud Cover: Percent Glare: Visibility Issues:

Animal Location & Distance to Pile Driving: North of Island 1, Mid-channel, 600m from trestle

Type of Pile Driving None Active

Distance From Observer When Initially Observed: 750m

Species Observed: Bottlenose Dolphin

Number of Animals Sighted (include age classes): 12 Adults

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Traveling

Animal Heading/Direction: East

Human Activities in Area: Light, small boat traffic

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph:

Notes: Group of 12 Dolphins spotted Midchannel, North of Island 1. Dolphins were traveling East and approximately 600m from the end of the trestle. Dolphins continued East and were last seen about 2km East of Island 1

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Ben Felder
 Observer Name / Signature



Daily Marine Mammal Observer Report

Contractor: CTJV / Dragados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: 114 March 2020		Observer Location (Island #)	
Date: 08/14/2020		Shift Start: 0601	
Sunrise: 0632 Sunset: 1938		Shift End: 1901	

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 2	1105	81	82	Good	80	1.5	6KT W	None	2

Observer Log

Time	Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
1021	Caten Ride
1038	Arrive on Island 2. Shaw's crew doing 48hr Restrike
1047	Take walk around Island
1081	Begin watch. Erica on Pier, Ben at North End.
1121	Group of 12 Bottlenose Dolphins spotted 600m north of the trestle, traveling East. Last seen at 1122, 2km East of Island 2, still traveling East
1138	Begin hitting West Pile w/ soft start. Bubble curtain active
1146	Begin hitting at normal interval
1147	Finish hitting West Pile. Begin setting up on East Pile
1207	Begin hitting East Pile at normal interval. Bubble curtain active
1209	Finish East Pile, begin post watch
1239	Finish post watch, take final walk around the island
1245	Caten Ride to yard
1301	Arrive at yard

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments

Observer Names: Ben Fielder, Erica Wolff

PJ 1/4



Daily Marine Mammal Observer Report

Contractor CTJV / Dragados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: IHA March 2020		Observer Location (Island #):	
Date: 08/26/2020		Shift Start: 0636	
Sunrise: 0630 Sunset: 1940		Shift End:	

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good Fair Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 1	0802	78	82	Good	5	2-3	12Kt, SEW	None	3
Island 2	1830	80	83	Good	0	1-6	20Kt, SEW	None	2

Observer Log

Time	Notes (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
0636	Catch Ride
0653	Arrive on Island 1
0700	Morning meetings, shown Drive 2 with DTH. Vince may drive it
1027	Walk around Island
1032	Begin Watch, Ben on Pier Nichols at North End
1108	Begin hitting West Pile w/ soft start, Bubble curtain on.
1113	Hitting at Normal Interval
1124	Finish West Pile. Set up on East Pile
1141	Begin hitting East Pile at normal interval. Bubble curtain on.
1151	Finish East Pile. Begin Post watch
1221	Finish Post Watch
1425	Begin Watch for Vince's crew on temporary deck. MMS's on Pier
1442	9 Dolphins spotted 700m from temp deck. Last seen 1.5km W of deck heading W
1456	at 1456
1458	3 dolphins spotted 350m N of temp deck. Last seen at 1505 750m W of temp deck heading W.
1523	Begin hitting 1st Pile w/ soft start
1534	Hitting at Normal Interval
1542	Finish 1st Pile. Watch continues
1600	3 Navy Hovercraft traveling W to E in channel
1629	Begin hitting at Normal Interval - 2nd Pile, No soft start
1638	Finish 2nd Pile. Watch continues
1701	Begin hitting 3rd Pile at Normal Interval
1712	Finish 3rd Piling. Begin Post Watch, Ben walk around Island.
1732	Finish Post Watch

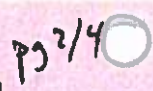
Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
1442	Bottlenose	9	9	0	N/A	Traveling	No	N/A	N/A	1456
1458	Bottlenose	3	3	0	N/A	Traveling	No	N/A	N/A	1505

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
Bottlenose	12	0	0	0	

Observer Names: Ben Fielder, Nichole Pierce



Daily Marine Mammal Observer Report

[illegible]

Observer Names:

Protected Species Sighting & Shut-Down Form

Corresponding sighting # for the day: 1
Shutdown 0 for the dayDate (DD/MM/YYYY): 26/08/2020 Time of Initial Sighting 1442 Time Animals Left Area: 1456Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1Areas Observed: Southwest of Island 1 Upland Pile Driving In-Water Pile DrivingAir Temp: 80°F Water Temp: 84°F Wave Height 13 ft Beaufort Sea State 1Weather Conditions: Clear, SunnyPercent Cloud Cover: 5 Percent Glare: 10 Visibility Issues: None

Animal Location & Distance to Pile Driving: 700m SW of temp. dock
Type of Pile Driving: None Active, setting up to Impact on temp. dock
Distance From Observer When Initially Observed: 800m S
Species Observed: Bottlenose
Number of Animals Sighted (include age classes): 9 Adults
Sex of Animals Observed: Unknown
Animal Behaviors Observed: Traveling
Animal Heading/Direction: West
Human Activities in Area: Small boat traffic

Shutdown Information

Time Begin:
Time End:
Total Down Time (mins):

Shutdown # for the day: N/AVideo or Photograph Taken? No Yes

Brief Description of Footage or Photograph:

Notes: Group of 9 dolphins first spotted 700m SW of temp. dock at 1442.
Dolphins traveled west and were last seen at 1456 still heading
west, approximately 1.5 km from temp. dock

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Hampton, VA 23669
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Ben Fielder
Observer Name / Signature

Protected Species Sighting & Shut-Down Form

Corresponding sighting # for the day: 2 4/4
Shut-down: _____ for the day

Date (DD/MM/YYYY): 26/08/2029 Time of Initial Sighting 1458 Time Animals Left Area: 1505

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: North+West of Island 1 Upland Pile Driving In-Water Pile Driving

Air Temp: 80°F Water Temp: 84°F Wave Height 1.30+ Beaufort Sea State 1

Weather Conditions: Sunny, Clear

Percent Cloud Cover: 5 Percent Glare: 0 Visibility Issues: None

Animal Location & Distance to Pile Driving: 350 m NW of temp. Dock

Type of Pile Driving None Active

Distance From Observer When Initially Observed: 200 m North

Species Observed: Bottlenose

Number of Animals Sighted (include age classes): 3 Adults

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Traveling

Animal Heading/Direction: West

Human Activities in Area: Small ship traffic

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken? No Yes

Brief Description of Footage or Photograph: _____

Notes: Dolphins first spotted just North of Island 1, 350m NW of temp dock. Dolphins continued West and were last seen at 1505, 750 ft west of temp dock.

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Ben Fielder
Observer Name / Signature



Daily Marine Mammal Observer Report

Contractor: CIJV / Dragados		Project Name: CIJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: IHA March 2020		Observer Location (Island #):	
Date: 08/25/2020		Shift Start: 0630	
Sunrise: 0631		Sunset: 1743	
		Shift End: 1745	

Weather and Visibility Information									
Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 1	0739	76	65	Good	0	1.0	9.3 Kts SSE	None	2
Island 1	4:13	89	60	Good	10%	1.0	11 Kts SW	None	3

Observer Log	
Time	Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
0630	Caught Bus
0651	Arrive at Island 1, strong winds
0744	Nordic Ace cargo traveled through channel E. to W
0837	USN 10 traveled travel through channel W to E
0839	Positioning bubble curtain on E pile
0927	Soft start on R pile, no sightings noted
0951	Driving stopped due to technical problems
1021	Resumed driving on E pile (R side) - 3 hits then complete. Start 30 min post
1051	30 min watch ends, no sightings
1108	Begin L side of E pile, soft start
1119	Two dolphins observed ~1000m from E pile
1128	Driving complete, 30 min post watch begins
1158	Watch complete, no further sightings
1229	Harbour Progress tanker traveling E. to W
1537	Seamax fairfield cargo traveling E to W
1539	One dolphin sighted on NW side of Island, 450m from temp dock
1613	W pile (Vince's team) begins moving pile in water
1616	Placed pile in water, then situated continuous vibratory hammer
1627	Pile driving begins
1702	Pile swaying, not secure. Removed from current position, placed back in template
1702	30 min post watch begins
1732	Post watch ends, no further sightings
1737	Ride back to yard
1745	Arrive at yard

Sighting Log										
Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
11:19a	Tursiops	2			1000m	Traveling	NO	N/A	N/A	11:23a
15:39	Tursiops	1	1		450m	Traveling	NO	N/A	N/A	16:01

Daily Summary					
Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
Tursiops	3	0	0	0	
Truncatus	0				

Observer Names: Nichole Pierce

Protected Species Sighting & Shut-Down Form

Corresponding sighting # for the day: 1
Shutdown: 0 for the day

Date (DD/MM/YYYY): 25/08/2020 Time of Initial Sighting 11:19a Time Animals Left Area: 11:23a

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. Island 1

Areas Observed: NE of Island 1 Upland Pile Driving In-Water Pile Driving X

Air Temp: 79°F Water Temp: 65.0°F Wave Height 1.6 ft Beaufort Sea State 3

Weather Conditions: Sunny, windy (9.3 kts)

Percent Cloud Cover: 0 Percent Glare: 0 Visibility Issues: None

Animal Location & Distance to Pile Driving: NE of Island 1, 600m from dock

Type of Pile Driving Impact w/ bubble curtain

Distance From Observer When Initially Observed: 600m

Species Observed: Bottlenose dolphin

Number of Animals Sighted (include age classes): 2, unknown

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Traveling

Animal Heading/Direction: East

Human Activities in Area: Small fishing boats

Shutdown Information

Time Begin:
Time End:
Total Down Time (mins):

Shutdown # for the day: N/A

Video or Photograph Taken? (No) Yes

Brief Description of Footage or Photograph:

Notes: Two bottlenose dolphins sighted about 600m NE of pile driving activity. Traveled E. Last sighted 11:23a.

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Nichole Pierce
Observer Name / Sig

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Protected Species Sighting & Shut-Down Form

3 of 3

Corresponding Sighting # for the Day: 2

Shutdown # for the Day: 0

Date (DD MM YYYY): 25/08/2020 Time of Initial Sighting 3:59p Time Animals Left Area: 4:01p

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. (Island 1)

Areas Observed: NW of Island 1 Upland Pile Driving: In-Water Pile Driving X

Air Temp: 89°F Water Temp: 60.8°F Wave Height 10ft Beaufort Sea State 3

Weather Conditions: Sunny, windy (11-17kts)

Percent Cloud Cover: 10% Percent Glare: 0 Visibility Issues: None

Animal Location & Distance to Pile Driving: NW of Island 1, 450m from temp dock

Type of Pile Driving Continuous (vibratory)

Distance From Observer When Initially Observed: ~500m

Species Observed: Bottlenose dolphin

Number of Animals Sighted (include age classes): 1 adult

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Traveling

Animal Heading/Direction: E

Human Activities in Area: None

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph:

Notes: One adult dolphin sighted 450m from temporary dock. Initially observed to be possibly feeding, then headed E and was not seen again

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Hampton, VA 23669
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Nichole Pierce
Observer Name / Sig

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1 of 2

Daily Marine Mammal Observer Report

Contractor: CTJV / Dragados	Project Name: CTJV Parallel Thimble Shoals Tunnel
NOAA/NMFS Permit: IHA March 2020	Observer Location (Island #): 1
Date: 08/24/2020	Shift Start: 1135
Sunrise: 0628 Sunset: 1943	Shift End: 1810

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 1	1241	84	82	Good	100	1.3	14kt, NE	None	2

Observer Log

Time	Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
1135	Catch Ride
1150	Arrive on Island 1
1155	Meet with crew. Show - Driving w/ Endnet. Winch Drilling w/ DTH
1205	Walk around Island. Fixed Pigeon stuck in netting.
1215	Walk out to pier + start watch
1347	Erica starts watch at North End
1428	1 Dolphin spotted East (600m) of East Pile. Last seen 1439 15 knots
1435	USNS 1 w to E in channel
1448	Cargo ship traveling w to E in channel
1623	USNS 189 traveling w to E in channel
1654	Winch crew begin drilling casing
1700	Informal showman's crew will not drive today
1730	Issue with air compressor. Bringing casing on deck, Post Watch
1750	End post watch
1753	Catch Ride
1810	Arrive at Yard

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
1428	Bottlenose	7	7	0	N/A	Traveling	No	N/A	N/A	1439

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
Bottlenose	7	0	0	0	

Observer Names: Ben Finkler, Erica Wolff

Protected Species Sighting & Shut-Down Form

Corresponding sighting # 1 the day 2-6-2
Shutdown 11:11 for the day

Date (DD/MM/YYYY): 2/6/21 Time of Initial Sighting 14:23 Time Animals Left Area: 14:27

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: under air pile Upland Pile Driving In-Water Pile Driving

Air Temp: 52 Water Temp: 80 Wave Height 1.5 Beaufort Sea State

Weather Conditions: cloudy

Percent Cloud Cover: 90% Percent Glare: 10% Visibility Issues: none

Animal Location & Distance to Pile Driving: east of eastern pile drive E 600m

Type of Pile Driving none

Distance From Observer When Initially Observed: 600m

Species Observed: Bottlenose Dolphins

Number of Animals Sighted (include age classes): 7

Sex of Animals Observed: adults

Animal Behaviors Observed: traveling

Animal Heading/Direction: Westward bound

Human Activities in Area: none

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph:

Notes: Animals first sighted on east side of Island 1 about 600m out. The Dolphins were traveling in a Westward direction through the middle of the channel.

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Erica Wolff
Observer Name / Signature



Daily Marine Mammal Observer Report

Contractor: CTJV / Dragados				Project Name: CTJV Parallel Thimble Shoals Tunnel						
NOAA/NMFS Permit: IHA March 2020				Observer Location (Island #): 1						
Date: 8/13/2020				Shift Start: 0630						
Sunrise: 0621				Sunset: 1958		Shift End: 1800				
Weather and Visibility Information										
Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale	
Island 1	0700	79	85	Good	20	1	7kt N	none	3	
Island 1	1705	79	85	Good	90	4	9kt N	none	3	
Observer Log										
Time	Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)									
0630	Nichole catches bus									
0653	Nichole arrives on Island									
0700	Erica catches bus									
0753	Erica arrives on Island									
0800	Walk around Island									
0820	Start watch on pier									
0927	Container ship Maerok Ohio in channel W to E									
1034	US Maury in channel W to E									
1151	Start 30 minute pre watch									
1221	Vince starts pile driving									
1306	Pile driving stops									
1316	Container ship Hyundai Speed in channel E to W									
1330	Vince starts next pile driving									
1330	USS 19 in channel W to E									
1419	USS 12 in channel W to E									
1425	Vince ends pile driving									
1634	Container ship Maerok Yukon in channel E to W									
1631	East Island pile drive starts									
1623	Erica spots two adult Dolphins traveling north at 300m last seen 1627									
1633	Tug and house barg in channel W to E									
1705	East Island pile drive ends									
1735	Stop watch									
1800	catch ride at yard									
1810	Arrive at yard									
Sighting Log										
Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
1623	T. truncatus	2	2	0	300m	Traveling	No	N/A	N/A	1627
Daily Summary										
Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments					
T. truncatus	2	0	0	0						

Observer Names: Erica, Nichole

Protected Species Sighting & Shut-Down Form

2 of 2

Corresponding sighting # for the day:

Shutdown: N/A for the day

Date (DD/MM/YYYY): 13/08/2020 Time of Initial Sighting 1623 Time Animals Left Area: 1623

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: North of Island 1 Upland Pile Driving NA In-Water Pile Driving ✓

Air Temp: 79 Water Temp: 85 Wave Height 3ft Beaufort Sea State 3

Weather Conditions: cloudy with winds of 9 kts NE

Percent Cloud Cover: 90% Percent Glare: 1% Visibility Issues: none

Animal Location & Distance to Pile Driving: 300m

Type of Pile Driving impact

Distance From Observer When Initially Observed: 300m

Species Observed: Bottle nose Dolphins

Number of Animals Sighted (include age classes): two

Sex of Animals Observed: unknown

Animal Behaviors Observed: traveling

Animal Heading/Direction: north

Human Activities in Area: n/a

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: _____

Video or Photograph Taken?: (No) Yes

Brief Description of Footage or Photograph: _____

Notes: First sighted single pair of Dolphins traveling North and parallel to shore. Once animals dove did not see next surfacing.

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(757)722-0113



Erica Wolff / Erica Wolff
Observer Name / Signature

102



Daily Marine Mammal Observer Report

Contractor: CTJV / Dragados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: IHA March 2020		Observer Location (Island #): 2	
Date: 08/12/2020		Shift Start: 0630	
Sunrise: 0618	Sunset: 2020	Shift End: 0752	

Weather and Visibility Information									
Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 2	0733	79	84	Good	0	.7	6 kt, NNE	None	1
Island 2	1541	83	86	Good	80	1	13 kt, NW	None	2

Observer Log	
Time	Notes (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
0630	Enter Bus
0650	Arrive at Island 2
0655	Take walk around Island
0713	Begin Watch. Ben on Pier, Victor at North End
0739	USNS 13 traveling E to W in channel
0744	Begin Driving West Pile w/soft start. Bubble curtain Active
0820	3 Dolphins spotted 600m North of Trench. Last seen 1 km N of 1133.
0840	USNS 50 traveling E to W in channel
0941	Stop Driving West Pile. Mechanical issue. Hammer won't fire.
1225	USNS 7 traveling W to E in channel
1519	Cargo ship traveling E to W in channel
1521	Restart West Pile w/soft start. Bubble curtain active.
1537	Oil Tanker traveling E to W in channel
1550	Begin hitting West Pile at Normal Interval
1556	Finish West Pile. Begin working up on East Pile. Watch continues
1633	Begin Driving East Pile w/soft start. Bubble curtain Active
1652	Begin hitting at Normal Interval
1701	Finish East Pile. Begin Post Watch
1731	Finish Post Watch. Take walk around Island
1740	Enter Bus to Yard
1752	Arrive at Yard

Sighting Log										
Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
0820	Bottlenose	3	2	1	60m	Feeding	No	NA	NA	1133

Daily Summary					
Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
TI Bottlenose	3	0	0	0	

Observer Names: Ben Fidler, Nichols Present

Protected Species Sighting & Shut-Down Form

2012

Corresponding Sighting # for the Day: 2

Shutdown # for the Day: N/A

Date (DD/MM/YYYY): 12/08/2012 Time of Initial Sighting 0820 Time Animals Left Area: 1133

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: East, North, North West Upland Pile Driving In-Water Pile Driving X

Air Temp: 80°F Water Temp: 84 Wave Height .7 Beaufort Sea State 2

Weather Conditions: Sunny, Wind 6kt NNE

Percent Cloud Cover: 10 Percent Glare: 4 Visibility Issues: None

Animal Location & Distance to Pile Driving:
 Type of Pile Driving Impact with Bubble Curtain
 Distance From Observer When Initially Observed: 750m
 Species Observed: Bottlenose Dolphin
 Number of Animals Sighted (include age classes): 2 Adults 1 Juvenile
 Sex of Animals Observed: Unknown
 Animal Behaviors Observed: Feeding, Traveling
 Animal Heading/Direction: East then West
 Human Activities in Area: Impact Hammer with Bubble Curtain, Large Ship Traffic

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph:

Notes: At 0820 3 Dolphins spotted feeding 600m North of Impact Hammer on trestle. At 0825 Dolphins were seen heading East. At 0957 Dolphins returned from the east and again began feeding 600m North of trestle. Dolphins last seen at 1133 1 km NW of Island 1 heading West.

REMSA, Inc.
 124 W Queens Way
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 (757) 722-0113



Ben Fidler
 Observer Name / Signature

1044



Daily Marine Mammal Observer Report

Observer Name: J. L. DeGuzman	Vessel Name: USV Parallel Pipeline Shores Tunnel
Survey Dates: 11A March 2020	Observer Location: Island #1
Start: 0618	Shift Start: 0630
Sunset: 2020	Shift End: 1743

Weather and Visibility Information									
Location	Time	Air Temp (F)	Water Temp (F)	Visibility (mi)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Height of Scale
Island #1	1027	83	85	Good	20	14'	7Kt N	None	1.5
Island #2	1630	84	85	Good	70%	2	11Kt NW	Rain	2

Observer Log	
Time	Notes (press watch times, start and stop times for pile driving activities, shift changes, human activities)
0630	Catch Bus
0653	Arrive Island #1
0700	Morning Meetings, Vessel leaving w/OTH - Shores Drive 2, P. Lee w/Export N.
0715	Walk around Island
0830	Start watching on pier
0840	USNS 189 moving E to W in channel
0841	5-6 w/ 3 juveniles heading W to E in channel
0857	Begin drilling casing on Temp Deck w/OTH / Outrigger coming W to E
0935	Container ship transiting E to W in channel
0952	Case ship transiting W to E in channel
1032	Stop drilling - Issue with crane
1043	USNS 189 moving E to W in channel
1130	1 Dolphin spotted 50m south of pier, heading N. last seen 1150 at Island #1
1132	Erion takes walk around Island
1151	Unconstrained drilling casing
1155	4 Adult Dolphins heading N of Island #1. last seen 1232
1518	Erion starts watch at Abate End Island #1 for Shores Group
1546	15 Adult Dolphins spotted all over side of Island. last seen at 1600 when operations halted for lighting in the area
1556	Shores Group Erion catches
1558	Told to go to cages due to lighting on the pier
1726	Catch Bus to Yard
1743	Arrive at the yard

Sighting Log									
Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (Y/N)	Time of Shut-down	Time of Start / p. last seen
1130	T. truncatus	3	2	0	N/A	Transiting	NO	N/A	1150
1158	T. truncatus	4	4	0	N/A	Feeding	N/A	N/A	1242
1546	T. truncatus	15	15	0	N/A	Transiting	NO	N/A	1600

Daily Summary					
Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
T. truncatus	20	0	0	0	

Observer Name: Ben Fielder, Erion Voller

Protected Species Sighting & Shut-Down Form

2 of 4

Corresponding Sighting # for the Day: 1

Shutdown # for the Day: N/A

Date (DD/MM/YYYY): 01/02/2020 Time of Initial Sighting 1130 Time Animals Left Area: 1140

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: N/NW of Island 1 Upland Pile Driving NA In-Water Pile Driving NA

Air Temp: 85°F Water Temp: 85°F Wave Height 1ft Beaufort Sea State 1

Weather Conditions: Sunny, wind 7kts NNW

Percent Cloud Cover: 20 Percent Glare: 5 Visibility Issues: None

Animal Location & Distance to Pile Driving: 50m South of Pier, 75m West of Island

Type of Pile Driving: None Active, setting up for OTH + Impact

Distance From Observer When Initially Observed: 50m

Species Observed: Bottle-nose Dolphin

Number of Animals Sighted (include age classes): 1 Adult

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Traveling

Animal Heading/Direction: N

Human Activities in Area: Small boat 51-61c

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken?: (No) Yes

Brief Description of Footage or Photograph: _____

Notes: Dolphin First spotted 50m south of Pier, heading N. Passed under Pier and continued North. Last seen at 1140 still headed North, 900m from Pier.

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Ben Fielder / BAF
Observer Name / Signature

Protected Species Sighting & Shut-Down Form

3 of 4

Corresponding Sighting # for the Day: 2

Shutdown # for the Day: N/A

Date (DDMMYYYY): 11/08/2000 Time of Initial Sighting: 11:55 Time Animals Left Area: 12:42

Project Name: CTIV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: North of Island 1 Upland Pile Driving None In-Water Pile Driving None

Air Temp: 34 Water Temp: 85 Wave Height: 1.5 Beaufort Sea State: None

Weather Conditions: sunny

Percent Cloud Cover: 4% Percent Glare: 1% Visibility Issues: None

Animal Location & Distance to Pile Driving: 700m

Type of Pile Driving: none or low intensity

Distance From Observer When Initially Observed: 700m

Species Observed: Small nose Dolphins

Number of Animals Sighted (include age classes): 4 adults

Sex of Animals Observed: unknown

Animal Behaviors Observed: possible feeding with 'cave'

Animal Heading/Direction: southeastern

Human Activities in Area: small craft passing

Shutdown Information

Time Begin:	
Time End:	
Total Downtime (mins):	

Shutdown # for the day: _____

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph: _____

Notes: First sighted swimming in a tight circle with very short distances travel between breathing intervals. Small fish craft passed through the area. Dolphins lost interest traveling away from area in a southeasterly direction. Returned at 12:41 continuing to circle with minimum travel possible feeding. Small vessel caused by the Dolphins wake, then continued to mill in the area until last sighting at 12:42.

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124 W. Queens Way
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Erica Wolff Erica Wolff
Observer Name / Signature

Protected Species Sighting & Shut-Down Form

4 of 4

Corresponding Sighting # for the Day: 3

Shutdown # for the Day: 154

Date (DD MM YYYY): 11/05/2020 Time of Initial Sighting: 1546 Time Animals Left Area: 1600

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No.: 1

Areas Observed: East Pile Upland Pile Driving In-Water Pile Driving ✓

Air Temp: 84 Water Temp: 85 Wave Height: 2-4 Beaufort Sea State:

Weather Conditions: cloudy with scattered showers

Percent Cloud Cover: 90% Percent Glare: 10% Visibility Issues: none

Animal Location & Distance to Pile Driving: 200m traveling towards pile

Type of Pile Driving: impact getting set in place

Distance From Observer When Initially Observed: 200m

Species Observed: 3rd stage "Dolphin"

Number of Animals Sighted (include age classes): 5 all adults

Sex of Animals Observed: unknown

Animal Behaviors Observed: traveling

Animal Heading/Direction: North

Human Activities in Area: The Dina Polarus passed by at 1552

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day:

Video or Photograph Taken?: ☒ No ☐ Yes

Brief Description of Footage or Photograph:

Notes: First sighted pod of 15 dolphins traveling parallel to east shore. They then turned into channel and towards pile drive at about 200m. The Dina Polarus was low and passed through the area as dolphins made their give. The next sighting of the dolphins had six individuals coming within a 105m of pile driving operation while the rest of pod stayed out 250m. Lighting watch came into effect before a hold on operations was implemented.

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124 W. Queens Way
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(757) 222-0113



Grace Wolff Grace Wolff
Observer Name / Signature



Daily Marine Mammal Observer Report

Contractor: CTIV / Dragados	Project Name: CTIV Parallel Thimble Shoals Tunnel
NOAA/NMFS Permit: IHA March 2020	Observer Location (Island #): 2
Date: 08/10/2020	Shift Start: 0630
Sunrise: 0617 Sunset: 2001	Shift End: 1800

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 2	0804	79	83	Good	6%	.7	2 kt N	None	2
Island 2	1307	82	84	Good	40%	2	11 kt WNW	None	2

Observer Log

Time	Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
0630	Catch Bus
0650	Arrive at Island 2
0700	Meet w/ Vince, Plan to Drill 3 Casings w/ DTH
0714	Walk around Island
0732	Begin Watch on Pier
0810	Start Drilling 1st Casing w/ DTH
0823	Finish 1st Casing
0830	6 Dolphins Feeding 400m SW of temp dock, last seen @ 1146
0905	USNS 21 traveling V to E in channel
0911	Stam Derricks + USNS 95 traveling E to W in channel
0955	Container ship heading E to W in channel
1305	Start Drilling 2nd Casing w/ DTH
1334	Finish 2nd Casing
1400	Walking in Area where to connect
1606	Begin Watch
1650	Start Drilling 3rd Casing w/ DTH (Don)
1714	Leave w/ Genoa, stopping for runway, begin Post-mortem, Nichols takes walk around Island
1744	Finish Post-mortem
1746	Catch Bus
1800	Arrive at Yard

0930	3 Adult Dolphins spotted Feeding @ 500m NW of Island 2, then last seen heading West @ 0937
------	--

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
08:30	T. Truncatus	5	4	1	N/A	Feeding	No	N/A	N/A	11:15
09:30	T. Truncatus	3	3	0	N/A	Feeding	No	N/A	N/A	09:37

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
T. Truncatus	8	0	0	0	

Observer Names: Ben Fielder, Nichole Placer

Protected Species Sighting & Shut-Down Form

2 of 3

Corresponding Sighting # for the Day: 1 Shutdown # for the Day: N/A

Date (DD/MM/YYYY): 8/10/2020 Time of Initial Sighting: 8:30 Time Animals Left Area: 1145

Project Name: CTIV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: West + North of Island 1 Upland Pile Driving: In-Water Pile Driving: X

Air Temp: 79 Water Temp: 64 Wave Height: 2ft Beaufort Sea State: 1

Weather Conditions: Sunny

Percent Cloud Cover: 0 Percent Glare: 0 Visibility Issues: N/A

Animal Location & Distance to Pile Driving: 400m SW of temp dock

Type of Pile Driving: DTH (Not Active)

Distance From Observer When Initially Observed: 550m

Species Observed: Bottlenose Dolphins

Number of Animals Sighted (include age classes): 5 w/ one juvenile

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Surface Feeding, Traveling

Animal Heading/Direction: Various

Human Activities in Area: DTH on temp dock, small craft traffic (Not Active)

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph:

Notes: Initial sighting @ 8:30, 400m SW of temp dock, feeding. Last sight at 9:30 heading E. Spotted again @ 1127 300m W of Island 1, feeding. Last seen N of Island 1 heading NE @ 1145.

REMSA, Inc
174 W. Queen's Way
Hampton, VA 23669
(757) 722-0113



Observer Name / Signature

Nichole Pierce

Ben Forder

Protected Species Sighting & Shut-Down Form

3 of 3

Corresponding Sighting # for the Day 2

Shutdown # for the Day N/A

Date (DD-MN-YYYY): 8/10/2020 Time of Initial Sighting 0930 Time Animals Left Area: 0937

Project Name: CTIA Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: NW of Island 1 Upland Pile Driving In-Water Pile Driving X

Air Temp: 80 Water Temp: 83 Wave Height 1 ft Beaufort Sea State 1

Weather Conditions: Clear, Sunny

Percent Cloud Cover: 20 Percent Glare: 0 Visibility Issues: None

Animal Location & Distance to Pile Driving: 650m NW

Type of Pile Driving DPH (not Active)

Distance From Observer When Initially Observed: 500m

Species Observed: Bottlenose Dolphin

Number of Animals Sighted (include age classes): 3 Adult

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Feeding, Traveling

Animal Heading Direction: West

Human Activities in Area: Small Boat Traffic, DPH (inactive)

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph:

Notes First spotted feeding for a short time @ 0930 NW of Island 1.
lost same heading traveling w/ @ 0937.

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Ben Fielder
Observer Name / Signature



Daily Marine Mammal Observer Report

Contractor CTJV Dragados				Project Name CTJV Parallel Thimble Shoals Tunnel						
NOAA NMFS Permit IHA March 2020				Observer Location (Island #) <u>Island 2</u>						
Date <u>08/08/2020</u>				Shift Start <u>0630</u>						
Sunrise <u>0615</u> Sunset <u>2003</u>				Shift End <u>1430</u>						
Weather and Visibility Information										
Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale	
<u>Island 2</u>	<u>0743</u>	<u>78</u>	<u>83</u>	<u>Good</u>	<u>75</u>	<u>0.7</u>	<u>6 kt ESE</u>	<u>None</u>	<u>1</u>	
Observer Log										
Time	Notes (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)									
<u>0630</u>	<u>Catch Ride</u>									
<u>0648</u>	<u>Arrive at Island 2</u>									
<u>0705</u>	<u>Take walk around Island</u>									
<u>0710</u>	<u>Spotted 2 Bottle nose 200m off end of Island 2 Traveling W</u>									
<u>0715</u>	<u>Walk out to pier & Begin Watch</u>									
<u>0819</u>	<u>Vigco's crew Begins Drilling 1st casing w/ DTH</u>									
<u>0835</u>	<u>Pause Drilling - Mechanical Issue</u>									
<u>0901</u>	<u>Resume Drilling</u>									
<u>0925</u>	<u>0925 Dolphin @ 910 Now Traveling East, 800m from DTH</u>									
<u>0930</u>	<u>Dolphin East seen</u>									
<u>1010</u>	<u>Eliza 1st casing - Watch continues</u>									
<u>1105</u>	<u>Sub w/ 3 escorts heading East in channel</u>									
<u>1238</u>	<u>Vigco's crew start on 2nd Pile</u>									
<u>1255</u>	<u>Enforced shawl's crew will not drive today</u>									
<u>1343</u>	<u>Vigco crew stop Drilling - Casing is too short w/ll Remove and use longer one Monday - Start Post Watch</u>									
<u>1355</u>	<u>Ben - walk around Island, Elizabeth continues Post Watch</u>									
<u>1413</u>	<u>End Post Watch</u>									
<u>1417</u>	<u>Catch Bus</u>									
<u>1430</u>	<u>Arrive at Yard</u>									
Sighting Log										
Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
<u>0710</u>	<u>T. truncatus</u>	<u>06</u>	<u>06</u>	<u>0</u>	<u>N/A</u>	<u>Traveling</u>	<u>No</u>	<u>N/A</u>	<u>N/A</u>	<u>0930</u>
Daily Summary										
Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments					
<u>T. truncatus</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>						

Observer Names: Ben Fielder, Elizabeth Damon

Protected Species Sighting & Shut-Down Form

Corresponding Sighting # for the Day: 1 Shutdown # for the Day: NA

Date (DD/MM/YYYY): 08/08/2020 Time of Initial Sighting 0710 Time Animals Left Area: 0930
930

Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 2

Areas Observed: North and West of Island 1 Upland Pile Driving In-Water Pile Driving X

Air Temp: 78°F Water Temp: 83°F Wave Height .7ft Beaufort Sea State 2

Weather Conditions: clear, mostly cloudy, wind 5 kt ESE

Percent Cloud Cover: 75% Percent Glare: 0% Visibility Issues: None

Animal Location & Distance to Pile Driving: No Pile Driving Active @ 710 DTA @ 925

Type of Pile Driving N/A @ 710, DTA @ 925

Distance From Observer When Initially Observed: 200m - off North End, Island 1

Species Observed: Tursiops truncatus

Number of Animals Sighted (include age classes): 6 Adults

Sex of Animals Observed: Unknown

Animal Behaviors Observed: Traveling

Animal Heading/Direction: West, then East

Human Activities in Area: None

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: N/A

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph:

Notes: 6 Adult Bottle nose originally spotted at 710 heading West.
Dolphin spotted again at 925 heading Back East and out
of view by 930.

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124 W. Queens Way
Hampton, VA 23669
(757)722-0113



Benjamin Fielder
Observer Name / Signature



Daily Marine Mammal Observer Report

Contractor: CTJV / Dragados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: IHA March 2020		Observer Location (Island #): 1	
Date: 22-July-2020		Shift Start: 1140	
Sunrise: 0601	Sunset: 2020	Shift End: 1650	

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Pier	1215	85	-	Good	10%	2.8	SW 5 kts	none	2
Pier	1505	87	82.6	Good	75%	2	SE 4 kts	none	1

Observer Log

Time	Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
1140	Catch van to Island 1
1200	Arrive at Island 1 - Immo Island work, 1 immo check-in w/ vince - almost done digging out casings, plant to drive 4 piles today
1210	set up on pier
1240	crew setting centralizer on casing and using crane to assist East coast
1308	Bringing 2nd centralizer to casing 5
1317	placing 3rd centralizer to casing 3
1321	placing 4th centralizer
1336	crew lifting pile
1348	requested crew delay start
1405	soft start
1409	start + stop impact driving
1410	1 hit
1411	1 hit
1412	normal hitting interval
1428	stop hitting, finish pile, bringing over 2nd pile
1442	placing impact on pile
1447	start driving 2nd pile
1449	stop driving
1451	start + stop driving
1453	resume driving
1459	stop driving
1502	placing pile #3 in casing

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
1325	T. trunc.	3	3	0	40 m	traveling	no	N/A	N/A	1331
1345	"	12	9	3	900 m	foraging diving	no	N/A	N/A	1351

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
T. truncatus	12	0	12	0	

Observer Names: Elizabeth Janz / Ben Fielder



Daily Marine Mammal Observer Report

[illegible]

Observer Names: _____

Protected Species Sighting & Shut-Down Form

Corresponding Sighting # for the Day: 01 Shutdown # for the Day: 00Date (DD/MM/YYYY): 22/07/2020 Time of Initial Sighting 1325 Time Animals Left Area: 1351Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1Areas Observed: W of Bridge Upland Pile Driving NO In-Water Pile Driving Not yetAir Temp: 87° Water Temp: — Wave Height 2.1 Beaufort Sea State 2Weather Conditions: Sunny, slight breezePercent Cloud Cover: 20 Percent Glare: none Visibility Issues: noneAnimal Location & Distance to Pile Driving: W of Bridge, S of Island 1, 800m from sourceType of Pile Driving Impact hammerDistance From Observer When Initially Observed: 900mSpecies Observed: Tursiops truncatusNumber of Animals Sighted (include age classes): 12 (9 adults, 3 juvenile)Sex of Animals Observed: N/AAnimal Behaviors Observed: Traveling + foragingAnimal Heading Direction: multiple directionsHuman Activities in Area: none directly, had fishing boats in area earlier and after

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: 00Video or Photograph Taken?: ☒ No ☐ Yes

Brief Description of Footage or Photograph: _____

Notes: First observed single dolphins heading N, W, E from 1325 to 1331, 800 to 1000 m from pier, observed 12 dolphins diving at that distance. Last sighting of 3 dolphins at that distance heading east at 1351

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Elizabeth Janz
Observer Name / Signature



Daily Marine Mammal Observer Report

Contractor: CTJV Dragados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA NMFS Permit: IHA March 2020		Observer Location (Island #): 2	
Date: 06/26/2020		Shift Start: 0630	
Sunrise: 05:46 Sunset: 20:27		Shift End:	

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction	Precipitation	Beaufort Scale
Island 2	0743	75°F	76°F	Good	100%	.7 ft	6kt NNE	Light Rain	2
Island 2	1252	78°F	76°F	Good	100%	.7 ft	11kt N	None	2

Observer Log

Time	Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
0630	Catch Bus to Island 2
0653	Arrive Island 2
0705	Meet w/ Vines crew. Plan to pull 2 casings using DTH
0740	Walk out to Pier, start watch
0930	4 Bottlenose Feeding midchannel, 1000m from Crane
1015	Dolphins Heading West
1100	Dolphins West out of view
1103	Walk around Island
1115	Resume watch on Pier
1217	Begin Drilling 1st Casing w/ DTH
1233	Sub w/ 3 escorts traveling E to W in channel
1248	Finish Casing 1, stop Drilling with DTH
1315	Walk around Island
1325	Retreat to Pier, Resume Watch
1410	2 Bottlenose traveling E 300m SW of Crane
1415	Bottlenose traveled out of view under bridge
1450	Start Drilling Casing 2 w/ 2 DTH
1518	Finish Casing 2, Start Post Watch
1524	Sub w/ 3 escorts traveling W to E in channel
1548	Done Post Watch, Walk around Island
1625	Catch Bus
1645	Arrive at Yard

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen
0930	P. Truncatus	4	4	0	N/A	Feeding	no	N/A	N/A	1100
1410	P. Truncatus	1	1	0	N/A	Traveling	no	N/A	N/A	1415

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments
P. Truncatus	5	0	0	0	

Observer Names: Bertram Fielder, Desmond Turner

Protected Species Sighting & Shut-Down Form

Corresponding Sighting # for the Day: 2 Shutdown # for the Day: N/A
 Date (DD/MM/YYYY): 25/06/2020 Time of Initial Sighting: 1410 Time Animals Left Area: 1415
 Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1
 Areas Observed: Southwest of Island Upland Pile Driving: 10 In-Water Pile Driving: 10
 Air Temp: 73°F Water Temp: 76°F Wave Height: 1 ft Beaufort Sea State: 1.5
 Weather Conditions: 100% cloudy, no precipitation
 Percent Cloud Cover: 100% Percent Glare: 0% Visibility Issues: None
 Animal Location & Distance to Pile Driving: 300m SSW of crane
 Type of Pile Driving: DTH - not active
 Distance From Observer When Initially Observed: 500m
 Species Observed: Tursiops truncatus
 Number of Animals Sighted (include age classes): 1 Adult
 Sex of Animals Observed: Unknown
 Animal Behaviors Observed: Traveling
 Animal Heading/Direction: East
 Human Activities in Area: None

Shutdown Information

Time Begin:	<u>NA</u>
Time End:	<u>NA</u>
Total Down Time (mins):	<u>NA</u>

Shutdown # for the day: NA

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph: _____

Notes: _____

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Benjamin Fields / BFF
 Observer Name / Signature

Protected Species Sighting & Shut-Down Form

Corresponding Sighting # for the Day: 1 Shutdown # for the Day: N/A
 Date (DD/MM/YYYY): 06/25/2020 Time of Initial Sighting: 0930 Time Animals Left Area: 1100
 Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1
 Areas Observed: North of Blind 1 Upland Pile Driving In-Water Pile Driving
 Air Temp: 75°F Water Temp: 76°F Wave Height .7 Beaufort Sea State 2
 Weather Conditions: Good
 Percent Cloud Cover: 100% Percent Glare: 0% Visibility Issues: None
 Animal Location & Distance to Pile Driving: 1500 m NW
 Type of Pile Driving N/A
 Distance From Observer When Initially Observed: 1000 m
 Species Observed: Bottlenose Dolphin
 Number of Animals Sighted (include age classes): 4, Adults
 Sex of Animals Observed: Unknown
 Animal Behaviors Observed: Feeding
 Animal Heading/Direction: West
 Human Activities in Area: None

Shutdown Information

Time Begin:	<u>N/A</u>
Time End:	<u>N/A</u>
Total Down Time (mins):	<u>N/A</u>

Shutdown # for the day: 01/4

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph:

Notes:

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Hermond Turner / D. A.
 Observer Name / Signature

Protected Species Sighting & Shut-Down Form

Corresponding Sighting # for the Day 01 Shutdown # for the Day 01
 Date (DD MM YYYY): 15/05/2013 Time of Initial Sighting 1501 Time Animals Left Area: 1513

Project Name: CTIV Thimble Shoals Parallel Tunnel Island No. 1

Areas Observed: In-channel N of Island 1 Upland Pile Driving N/A In-Water Pile Driving X

Air Temp: 83 Water Temp: 62.8 Wave Height 1' Beaufort Sea State 3

Weather Conditions: Sunny with SW wind 11.7 kts

Percent Cloud Cover: 15% Percent Glare: 0% Visibility Issues: white caps in channel

Animal Location & Distance to Pile Driving: 40-150 m

Type of Pile Driving DTH

Distance From Observer When Initially Observed: 200 m

Species Observed: Tursiops Truncatus

Number of Animals Sighted (include age classes): approx 3 adults

Sex of Animals Observed: N/A

Animal Behaviors Observed: traveling / diving

Animal Heading/Direction: East through channel then N to Island 2 and S to Island 1

Human Activities in Area: Fishing boats (2 to 3)

Shutdown Information

Time Begin:	<u>1501</u>
Time End:	<u>1527</u>
Total Down Time (mins):	<u>26 min</u>

Shutdown # for the day: 01

Video or Photograph Taken?: No Yes

Brief Description of Footage or Photograph: dolphins seen N of DTH

Notes:

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Elizabeth Janz / E Janz
 Observer Name / Signature

Protected Species Sighting & Shut-Down Form

Corresponding Sighting # for the Day: 01Shutdown # for the Day: 0Date (DDMMYYYY): 01/01/2000 Time of Initial Sighting: 1736 Time Animals Left Area: 1742Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1Areas Observed: W of channel / tunnel Upland Pile Driving N/A In-Water Pile Driving DTH (10m down)Air Temp: 78° Water Temp: — Wave Height: 1' Beaufort Sea State: 3Weather Conditions: SunnyPercent Cloud Cover: 15 Percent Glare: 0% Visibility Issues: Some white horses in
area of sighting and
SailboatAnimal Location & Distance to Pile Driving: ~100Type of Pile Driving: DTH grinding stone but not hittingDistance From Observer When Initially Observed: ~1,000 mSpecies Observed: Tursiops truncatusNumber of Animals Sighted (include age classes): 3 adultsSex of Animals Observed: unidentifiedAnimal Behaviors Observed: leaping in a circular formation (possibly foraging)Animal Heading/Direction: West, North West from pile drivingHuman Activities in Area: tugboat / barge had just traveled East of
this location and a sailboat headed towards them from
East of the tunnel

Shutdown Information

Time Begin:	
Time End:	
Total Down Time (mins):	

Shutdown # for the day: 0Video or Photograph Taken?: ☒ No ☐ Yes

Brief Description of Footage or Photograph: _____

Notes: brief sighting - one MMD watched while other grabbed
camera, dolphins reappeared West of original sighting
close to sailboat. 1746 pile drivers finished for the day
saward marine barge working approx 1,000 m NE of dolphin sighting

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Elizabeth Janz / [Signature]
Observer Name / Signature

Protected Species Sighting & Shut-Down Form

Corresponding Sighting # for the Day: 1Shutdown # for the Day: 0Date (DDMMYYYY): 03/28/2020 Time of Initial Sighting 1100 Time Animals Left Area: 1115Project Name: CTJV Thimble Shoals Parallel Tunnel Island No. 1Areas Observed: N + S PILE SITES Upland Pile Driving N/A In-Water Pile Driving N/AAir Temp: 56 | Water Temp: 50.7 Wave Height 3 ft Beaufort Sea State 2

Weather Conditions: _____

Percent Cloud Cover: 25% Percent Glare: 10% Visibility Issues: NONEAnimal Location & Distance to Pile Driving: 300' NW of OBSERVER; 200'S of PIER; 1000+MType of Pile Driving NONEDistance From Observer When Initially Observed: 1000+ MSpecies Observed: N/ANumber of Animals Sighted (include age classes): 2; 1 ADULT 1 JUVENILESex of Animals Observed: N/AAnimal Behaviors Observed: SWIMMING, SURFACINGAnimal Heading/Direction: SWHuman Activities in Area: (2) SENARD MARINE TUBES MOORED TO MOORING BOYS.

Shutdown Information

Time Begin:	<u>1100</u>
Time End:	<u>1115</u>
Total Down Time (mins):	<u>0 MIN</u>

Shutdown # for the day: 0Video or Photograph Taken?: No ☒ Yes

Brief Description of Footage or Photograph: IN THIS VIDEO YOU CAN SEE ONE LARGE BLON 48 SECONDS IN. THE TYPE OF ANIMAL IS UNKNOWN. BEST JUDGEMENT WOULD BE WHALE.

Notes: _____

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Observer Name / Signature

GABBY THORNTON [Signature]



Daily Marine Mammal Observer Report

Contractor: CTJV / Dragados		Project Name: CTJV Parallel Thimble Shoals Tunnel	
NOAA/NMFS Permit: IHA August 1, 2018 March 10, 2020		Observer Location (Island #): 1	
Date: 28-March-2020		Shift Start: 0630	
Sunrise: 0654 Sunset: 1922		Shift End: 1330	

Weather and Visibility Information

Location	Time	Air Temp (F)	Water Temp (F)	Visibility (Good, Fair, Poor)	Cloud Cover (%)	Wave Height (ft)	Wind Speed & Direction (Kts)	Precipitation	Beaufort Scale
Pier	0730	56.3	50.4	Good	50%	2-6	SE 11.1	none	2
Pier	1100	58.1	50.7	Good	10%	3	E 8	none	2

Observer Log

Time	Notes: (pre-watch times, start and stop times for pile driving activities, shift changes, human activities)
0630	Catch bus to Island 1
0650	Arrive at Island 1
0655	Robert informs us it will be a while until we are needed due to issues encountered by night shift.
0705	Meeting with crew
0825	Tugboat pulling barge through channel; Seaward marine actively working with dredger in water
0935	Cargo ship travelling W to E through channel
1010	Island walk, fog rolling in (N to S)
1030	Seaward Marine idling
1100	pair of whales seen 300' SW of pier 100m from observers travelling further from pier last seen 1110
1144	Cargo ship travelling E to W through channel
1236	Crew called a van to pick up MMS, not going to need us today
1308	Catch van to yard
1330	arrive at yard

Sighting Log

Time	Species	Total Number	# Adults	# of Juveniles	Closest Distance to Pile Driving	Activity or Behaviors	Shut down? (yes/no)	Time of Shut-down	Time of Start Up	Time last seen

Daily Summary

Species	Total Number	Takes in Zone A	Takes in Zone B	# Shut-Downs	Comments

Observer Names: Elizabeth Janz / GABBY THORNTON