



**US Army Corps
of Engineers®**
New York District

NEW YORK AND NEW JERSEY HARBOR DEEPENING CHANNEL IMPROVEMENTS

NAVIGATION STUDY

FINAL INTEGRATED FEASIBILITY REPORT & ENVIRONMENTAL ASSESSMENT

APPENDIX A9: Cultural Resources

HISTORIC PROPERTIES SUMARY

**New York New Jersey Harbor Deepening Channel Improvements
Feasibility Study and Environmental Assessment
Essex, Hudson, Monmouth and Union Counties, New Jersey
Kings, Queens and Richmond Counties, New York**

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1. Introduction

The US Army Corps of Engineers, New York District (the District) is currently proceeding with the New York New Jersey Harbor Deepening Channel Improvements Feasibility Study and Environmental Assessment (HDCI), which was authorized by §435 of the Water Resources Development Act (hereinafter, WRDA) of 1996 (Pub. L. No. 104-303). The study conducted pursuant to §435 above resulted in a Chief's Report dated 2 May 2000, recommending a 50-foot deep channel in the harbor based on the *Regina Maersk* (6,400 Twenty-foot Equivalent Unit [TEU]) as the design vessel. The recommended plan was authorized for construction in §101(a)(2) of Water Resources Development Act 2000 (Pub. L. No. 106-541). Construction of the resulting 50-foot Federal Navigation Project was completed in 2016.

In March 2018, an Initial Appraisal Report was completed in compliance with Section 216 of WRDA 1970 to determine if there is potential Federal interest to undertake modifications to the existing 50-foot Federal Navigation Project. The Initial Appraisal Report determined that the accelerating expansion of the volume of trade that has taken place since the existing 50-foot Federal Navigation Project was authorized has led to the existing project's dimensions being superseded in use in the Port of New York and New Jersey much sooner than anticipated. This fact has a material effect on the economics and engineering design of the 50-foot Federal Navigation Project. The Initial Appraisal Report made the recommendation to "investigate and determine if there is a Federal interest in continuing the project with the preparation of cost-shared feasibility report for analyzing alternatives to address the identified problems though possible modifications of the project."

As an outcome of the Initial Appraisal Report, the resulting study is called the New York and New Jersey Harbor Deepening Channel Improvements, Navigation Feasibility Study (HDCI Study). The Water Resources Development Act 1970 §216 limits the analysis of the HDCI Study to the constructed 50-foot Federal Navigation Project. A Feasibility Cost Sharing Agreement was executed on 22 July 2019 with the Port Authority of New York and New Jersey (PANYNJ) as the non-federal sponsor. The HDCI Study is cost shared 50% federal and 50% non-federal.

The New York New Jersey Harbor encompasses seven counties and two states. In New Jersey there are four counties: Essex, Hudson, Monmouth and Union. In New York there are three counties: Kings, Queens and Richmond. There are eight federal navigation channels that are being investigated by this study: Ambrose, Anchorages, Port Jersey, Kill Van Kull, Arthur Kill, Newark Bay, Elizabeth, and South Elizabeth.

As a federal agency, the Corps has certain responsibilities for the identification, protection and preservation of cultural resources that may be located within the Area of Potential Effect (APE) associated with the proposed project. Present statutes and regulations governing the identification, protection and preservation of these resources include the National Historic Preservation Act of 1966 (NHPA), as amended; the National Environmental Policy Act of 1969; Executive Order 11593; and the regulations implementing Section 106 of the NHPA (36 CFR Part 800, *Protection of Historic Properties*, August 2004). Significant cultural resources include any

material remains of human activity eligible for inclusion on the National Register of Historic Places (NRHP). This work is done in coordination with the Historic Preservation Offices of New Jersey and New York (NJSHPO and NYSHPO), federally-recognized Tribes, and interested parties. The purpose of this report is to compile the information gathered for the study to determine the potential of the project to result in adverse effects to historic properties. To do this the District carried out a review of existing surveys and historical documentation to identify previously recorded historic properties and properties with the potential to be eligible for the NRHP and areas of archaeological sensitivity within the APE.

2. Project Description

An alternatives analysis completed for the project included deepening the federal navigation channels (Figure 1) in increments up to 60 feet deep, or up to 10 feet of deepening, and widening the existing channels to facilitate larger ships turning in the existing channels. In the Pre-Engineering Design and Construction (PED) phase additional widening areas will be investigated that will serve as meeting and passing zones for ships in the Harbor. The alternatives analysis eventually narrowed its focus to two target depths or deepening increments, 4 feet or 5 feet, and the Environmental Assessment and this assessment has been focused on these two alternatives. The APE for the 5 foot is slightly larger horizontally in addition to vertically due to the larger side slopes of a 5-foot channel. The methods to deepen the channel include dredging and blasting. Blasting is required when the channel must be deepened through bedrock. Dredging is used when the channel is deepened through unconsolidated sediments. The initial recommended plan consisted of deepening the existing channels by four feet with widening in the areas shown in Figure 2. Figure 3 shows the difference in footprint of the four-foot versus the current recommended plan of five-foot deepening. Figure 4 identifies the names of the federal navigation channels. Deepening the channels that are subject to this study by four feet will make the design depth of the Ambrose channel 57 feet deep, the Anchorages 54 feet, Port Jersey 56 feet, Kill Van Kull 56 feet, Newark Bay 56 feet, South Elizabeth 56 feet, and Port Elizabeth 56 feet. Likewise, if the channels are deepened by five feet, the design depths will be one foot deeper than the numbers presented above for the four-foot deepening. Some areas of the channels are already these specified design depths or deeper, so these areas have been omitted from Figure 2.

3. Area of Potential Effect

The Area of Potential Effect (APE) represents the physical extent of the undertaking within which direct and/or indirect effects of the construction, operation, and maintenance of the project, could be caused to the character or use of a historic property. For this assessment, the APE was defined as the maximum extent of construction limits of all widened or deepened channels, a 500-foot buffer around all known bedrock in the construction limits (blasting this bedrock will cause vibrations that could be damaging to historic structures), and any additional locations that will be required to be used as environmental mitigation sites (to be identified in the future) (Figure 2). Both of the impacts of the 4-foot and the 5-foot deepening are being considered, but the impacts of the 5-foot deepening will be larger than the 4-foot deepening, so the 5-foot deepening can be considered the maximum extend of impact (Figure 3). No staging

areas have been identified, but if used, staging areas would be part of the APE as well. For this project, the term construction limits refers to the areas that will actually be deepened or widened, whereas APE includes all of these areas, in addition to mitigation sites, staging areas, and the 500-foot buffer for potential vibration impacts.

4. Existing Surveys by the District for the Harbor Deepening Project

During the 50 Foot Federal Navigation Project, there were four main concerns for affects to cultural resources. They were: 1) submerged Native American sites; 2) abandoned historic shipwrecks; 3) vibration from blasting having an effect on historic structures; and 4) conducting cultural resources surveys of environmental mitigation sites needed for the harbor deepening. The New York District conducted thirteen cultural resources investigations. A brief synopsis is given here.

4.1 Submerged Native American Sites

In the initial study phase for the project two small scale investigations were carried out to look for submerged Native American sites within the APE. In 2000 the District conducted a study to look for submerged sites in the Upper and Lower Bay segments of the project (Panamerican Consultants 2000). This investigation looked at the cores from the geotechnical investigations that were undertaken for this study to develop a sensitivity model for submerged Native American sites. Samples from these cores were taken for radiocarbon dating, foram analysis, pollen analysis, and macrobotanic identifications. In general, it was concluded that the navigation channels have moderate to high potential for preserving intact deposits pre-dating 6,000 B.P. The oldest and most rarely documented prehistoric sites are most likely to be impacted and encountered by channel widening as opposed to deepening as the areas previously deepened are likely to have been disturbed by previous dredging activities. In 2001 another study was conducted for the Port Jersey segment of the project (Geoarchaeology Research Associates 2001). Later, it was decided that a larger, more comprehensive investigation of this issue was needed for the Harbor to guide future work. This was accomplished with two reports, the first in 2007 to create a framework for the model to be developed (Geoarchaeology Research Associates 2007), and the second in 2014 to actually produce the model (Geoarchaeology Research Associates 2014). The model identified the entire Harbor as either high, medium, or low potential for submerged Native American sites and made recommendations for additional borings and geomorphological investigations in each probability zone to locate sites during future work (Figure 5).

4.2 Abandoned Historic Shipwrecks

In 2001 the District conducted the first study to look for abandoned historic shipwrecks in the Port Jersey segment of the APE. This work was done by remote sensing (Panamerican Consultants 2001). The investigation located 5 magnetic anomalies, none of which were determined to be significant cultural resources. Around this same time, the District's Removal of Drift project was ongoing and its APE overlapped with the Harbor Deepening Project's APE. From the Removal of Drift project five National Register-eligible shipwrecks were identified

within the Harbor Deepening Project's APE. In 2002 a larger survey was conducted for the Upper and Lower Bay segments of the project (Panamerican Consultants 2002). This was a remote sensing survey (DGPS, magnetometer, and sidescan sonar) of the edges of the existing Federal Navigation channel. The surveyed area extended 100 feet from the edges of the channels. A total of 170 line miles in New York Harbor were investigated. Twenty-eight anomalies and 11 sidescan targets were located by the study. Further investigation was required to determine if these anomalies were National Register eligible shipwrecks.

In 2004 archaeological divers investigated all 39 anomalies and identified one as a National Register-eligible shipwreck within the APE (Panamerican Consultants 2004). This brought the total of NR eligible shipwrecks in the Harbor Deepening APE to six vessels; which included the Menhaden trawler *Fish Hawk*, a wood hydraulic dredge, the 4 masted schooner *Paul E. Thurlow*, two different balanced floating drydocks, and an iron/wood composite vessel. The Harbor Deepening Project could not be rerouted to avoid affecting these six shipwrecks, so a Memorandum of Agreement was signed that stipulated the District would fully record the six shipwrecks before construction of the project and salvage any meaningful remains from the vessels. In 2008 Panamerican Consultants completed the recordation of the vessels which were presented in a report (Panamerican Consultants 2008a) and salvaged gudgeons and pintles from one vessel (the *Paul E. Thurlow*) and fittings from another vessel (the *Fish Hawk*) that were presented in a separate 2008 report (Panamerican Consultants 2008b).

During construction of the project in the Ambrose Channel, there was an inadvertent discovery of a shipwreck inside the Ambrose Channel. In 2008 a survey of the vessel was carried out and the wreck was determined not eligible for the National Register (Panamerican Consultants 2008c). The original Programmatic Agreement for this study assumed that there would be no historic materials inside the navigation channels using the assumption that all of the navigation channels had been frequently dredged to maintain their depth. Where this shipwreck was discovered in the Ambrose channel, the water depth is so deep that the channel had actually never been dredged. With this new knowledge, it was decided that another remote sensing survey was required for areas within the federal navigation channel that had never been dredged. This work was conducted in 2009 by Panamerican Consultants to cover other areas in the Ambrose Channel and Sandy Hook Pilot Area. A total of 16 magnetic anomalies and 51 side scan sonar targets were encountered in the Ambrose Channel. Just one of the acoustic targets was determined potentially eligible worthy of additional investigations (a wooden barge) but it is located in 90 feet of water well beyond the areas to be dredged during the previous harbor deepening to 53 feet in this area. Two of the high spots (High Spots A and B), or obstructions, in the Sandy Hook Pilot area were identified as potentially significant cultural resources. High spot A represents what might have been the remains of the *Daghestan*, an iron hulled vessel sunk in 1908. The other was determined to be a debris field. NYSHPO concurred that the *Daghestan* did not possess the integrity to be determined eligible for the NRHP. The *Daghestan* was deliberately destroyed as a hazard to navigation after it sunk, and as a vessel lacks significance in American history or engineering. No further work was undertaken.

4.3 Vibrations

During the 50-foot Federal Navigation Project the District conducted vibration monitoring for all structures that were determined to be at a risk of being affected by the blasting of bedrock to deepen the channel. The vibrations were monitored with seismographs to ensure that the structures did not endure vibrations exceeding 0.5 Peak Particle Velocity (PPV) (the maximum allowable threshold for historic structures based on U.S. Bureau of Mine Safety standards that have been adopted by New Jersey and New York City). This monitoring was conducted on all buildings that could have been potentially affected, regardless of national register eligibility status. This monitoring showed that no structures were harmed by the blasting, historic or not.

5. Existing Surveys within the APE by Others

5.1 New York

96PR1252: The District conducted another study within the APE of HDCI in 2000. This investigation was for the Arthur Kill-Howland Hook Marine Terminal Channel Project. Four cores were taken northeast of Shooters Island in an attempt to reconstruct the paleoenvironment in this location. The study found that this site became submerged 6,000 years ago, meaning only cultural materials older than this could be preserved in this location. No sampling for archaeological remains was carried out as part of this investigation so no archaeological sites were identified (Geoarchaeology Research Associates 2000).

05PR1178: In 2002 Hartgen Archaeological Associates prepared a Phase IA literature search for the Cross Harbor Freight Movement Project. The New York City Economic Development Corporation (NYCEDC) is the project sponsor and the Federal Highway Administration and the Federal Railroad Administration are co-lead agencies. The literature review found that portions of the project area are highly sensitive for Precontact and historic archaeological remains.

08PR2491: In 2008 FERC conducted a geophysical remote sensing study for the Bayonne Energy Center Project. This project was to install a 6.4 mile long submerged cable under the Hudson River from Bayonne, NJ to Brooklyn, NY. A 300 foot wide corridor was surveyed for this cable. This investigation found 14 magnetic anomalies and recommended them all for avoidance (Dolan Research 2008).

11PR6749: In 2012 the US Coast Guard conducted a phase IA archaeological investigation of the Bayonne Bridge in preparation of raising the bridge due to clearance issues with ships passing beneath it. A separate report was prepared for each state, one for New York, and one for New Jersey. The bridge itself is eligible for the National Register of Historic Places, as well as both the New York and New Jersey State Registers. The APE of the bridge raising on the New York site was determined in this report to have low potential for both Precontact and Historic period resources.

17SR00334: In 2017 Transcontinental Gas Pipe Line Company did a Phase I archaeological investigation for 23.3 miles of 26" diameter offshore pipe line from Sayreville, NJ to Rockaway Peninsula, NY. One report was prepared for New York, and one report for New Jersey. The New

York portion of the project has a 12,027 acre APE. The purpose of this pipe line is to increase supply of natural gas for heating in New York. This survey included geophysical and geotechnical investigations. 17 potential historic resources were located during this survey and recommended for avoidance. Seismic data showed that the geologically recent strata has been eroded by marine transgression in the study area, so the project was determined to have no significant impact on Precontact cultural resources (Christopher Goodwin and Associates 2017).

18SR56141: In 2019 one anomaly (B12-002) identified in the Transcontinental Gas Pipe Line expansion (17SR00334) was investigated by Christopher Goodwin and Associates. This anomaly turned out to be natural stratigraphy, and not a national register eligible shipwreck. Due to this, the determination of no historic properties affect was recommended for the project.

5.2 New Jersey

In New Jersey, there have been 30 previous archaeological surveys within the APE. Due to the COVID-19 pandemic, the New Jersey SHPO has closed its office to researchers indefinitely and there is no projected date to reopen. Normally this section would present a brief overview of each of the previous surveys that have occurred, but at this time this information cannot be retrieved. The identification numbers of each of the surveys are presented below, and when the NJ SHPO reopens, this information will be presented in an addendum to this report.

HUD A 50a; HUD A 50b; HUD A 50c (1-2); HUD A 187; HUD A 271a; MULT 97a; MULT 97b; MULT A 12; MULT A 22, a; MULT A 22, b; MULT A 23; MULT A 97; MULT A 97a; MULT R 100; MULT R 100a; MULT R 100c; MULT R 100d; MULT A 147a; MULT A 147b; MULT A 201; MULT A 201a; MULT A 259; UNI A 11; UNI A 23; UNI B 28; UNI A 123; UNI A 123a; UNI A 123b; UNI Y 153; UNI Y 307.

6. Archaeological Sites

6.1 New York Archaeological Sites

6.1.1 4-Foot Deepening APE

6.1.1.1 Archaeological Sites within One Mile of the APE

In New York, there are 52 archaeology USNs within one mile of the APE (This is 1 mile from the 500-foot vibration buffer). Of these, 14 resources are NR eligible, 27 are not eligible, and 11 are undetermined. Table 1 presents those resources that are NR eligible. There are 19 New York State Museum sites within one mile of the APE (Table 2). Zero New York State Museum sites are within the APE. Very little information is known about the New York State Museum sites.

6.1.1.2 Archaeological Sites within the Construction Limits

One resource is within the construction limits, which is the NR eligible “vessel Paul E. Thurlow KVK 37” (USN 08501.002828) and is presented as bold and italic in Table 1. This shipwreck was recorded during the previous harbor deepening and determined to be eligible for the NR. For mitigation, it was completely recorded.

6.1.1.3 Archaeological Sites within the 500-Foot Blasting Zone

Within the 500-foot blasting zone there are 5 archaeological USNs, all of which are eligible for the NR and bolded in Table 1. All five of these NR eligible properties are historic shipwrecks. During the 50-foot Harbor Deepening Project these shipwrecks were considered at risk of damage as a result of the project. To mitigate for their potential loss the District implemented the mitigation measures described in Section 4.2 above in accordance with the PA and in coordination with the PA signatories. All five of these resources remain intact within the blasting zone APE.

Table 1. New York Archaeology USNs within One Mile of APE.

USN	Name	NR Eligibility	Distance from APE (miles)
4701.018702	Barkeloo Family Cemetery	Eligible	1
8501.000007	Fountain-Mouquin House Historic And Prehistoric Site	Eligible	1
8501.000058	GB Berth Pier (Bldg 100 - Non-Contributing)	Eligible	0.8
8501.002362	Staten Island Cemetery (Estab. 1847)	Eligible	0.2
8501.002605	V-5 Small Beam Engine Wood Sidewheeler With A-Frame	Eligible	0.1
8501.002616	V-10 Centerboard Schooner	Eligible	0.1
8501.002617	V-28 Steel Steam Lighter Blairstown, 1916	Eligible	0.1
8501.002638	V-105 A-Frame Crane Barge	Eligible	0.8
8501.002853	U.S Quarrantine Grounds Marine Hospital & Cemetery	Eligible	0.5
08501.002828	Vessel Paul E. Thurlow KVK 37	Eligible	Within Construction Limits
08501.002827	Vessel fish hawk KVK 33	Eligible	Within 500-foot blasting zone
08501.002703	V-45 WOOD DREDGE	Eligible	Within 500-foot blasting zone
08501.002825	Balanced Floating Dry Dock KVK 38	Eligible	Within 500-foot blasting zone
08501.002826	Suction Dredge KVK 36	Eligible	Within 500-foot blasting zone

Table 2. New York State Museum Sites within One Mile of APE.

NYSM Site Number	Site Name
728	Arlington Avenue

730	Arlington Station
734	Peltons Cove
750	No info
3605	No info
3611	No info
4591	No info
4592	No info
4593	No info
4594	Bowman's Brook?
4611	No info
4629	No info
6956	No info
7320	Fort Wadsworth
7321	No info
7811	No info
7812	No info
7813	No info
8506	No info

6.1.2 5-Foot Deepening

6.1.2.1 Archaeological Sites within One Mile of the APE

With the 5-foot deepening, there is one additional archaeological USN that is within one mile of the APE (one mile from 500-foot buffer). This a NR listed resource called HOUSING (BLDG 101) (USN 08501.000054).

6.1.2.2 Archaeological Sites within the Construction Limits

No additional archaeological sites are located within the construction limits of the 5-foot plan. The same one NR eligible shipwreck is within the construction limits (vessel Paul E. Thurlow KVK 37 USN 08501.002828).

6.1.2.3 Archaeological Sites within the 500-Foot Bedrock Blasting Zone

No additional archaeological sites are located within the 500-foot bedrock blasting zone of the 5-foot plan. The same 5 NR eligible resources are within the 500-foot blasting buffer.

6.2 New Jersey Archaeological Sites

6.2.1 4-Foot Deepening

6.2.1.1 Archaeological Sites within One Mile of the APE

In New Jersey, there are five archaeological sites within one mile of the APE (one mile from 500-foot buffer). This is according to spatial data the District received from the NJ SHPO in November 2012 for the Hudson Raritan Estuary Project. Four of these sites are Precontact and one is a cluster of historic shipwrecks. Once the NJ SHPO reopens, this data will be updated.

6.2.1.2 Archaeological Sites within the Construction Limits

Zero of the archaeological sites are within the construction limits.

6.2.1.3 Archaeological Sites within the 500-Foot Blasting Zone

There are zero archaeological sites within the 500-foot blasting zone.

Table 3. New Jersey Archaeological sites within one mile of the APE.

Site Number	Site Name	NR Eligibility
28-UN-021	Derelict Wreck Site, U.S. Dike	Not eligible
28-HD-006	Bayonne	Unevaluated
28-HD-027	Constable Hook 3 Prehistoric	Unevaluated
28-HD-028	Constable Hook 4 Prehistoric	Unevaluated
28-HD-029	Constable Hook 5 Prehistoric	Unevaluated

6.2.2 5-Foot Deepening

6.2.2.1 Archaeological Sites within One Mile of the APE

No additional archaeological sites are recorded within the APE for the 5-foot deepening plan. The same five archaeological sites are within one mile of the APE.

6.2.2.2 Archaeological Sites within the Construction Limits

As with the 4-foot deepening, there are no New Jersey archaeological sites within the construction limits.

6.2.2.3 Archaeological Sites within the 500-Foot Blasting Zone

No additional archaeological sites are recorded within the blasting zone APE for the 5-foot plan.

7. Historic Resources

7.1 New York Historic Resources

7.1.1 4-Foot Deepening

7.1.1.1 Historic Resources within One Mile of the APE

In New York there are 912 building USNs within one mile of the APE. 75 are listed on the NR, 113 are eligible, 187 are not eligible, and 537 are unevaluated. Appendix A presents the NR eligible and listed resources.

7.1.1.2 Historic Resources within the Construction Limits

Two resources are located within the construction limits. This is the Bayonne Bridge (USN 08501.002781) and Verrazano Narrows Bridge (USN) (presented as italic in Table 4).

7.1.1.3 Historic Resources within the 500-Foot Blasting Zone

Two NR eligible or listed resources are located within the 500-foot blasting buffer (Table 4). The Bayonne Bridge counts as both within the construction limits and within the 500-foot blasting zone. Both resources are NR eligible.

Table 4. New York Historic Resources within 500-foot blasting zone.

USN	Name	NR Eligibility
8501.002781	Bayonne Bridge (Route 440)	Eligible
8501.002189	Faber Park	Eligible

7.1.2 5-Foot Deepening

7.1.2.1 Historic Resources within One Mile of the APE

In addition to the USNs identified for the 4-foot plan there are two additional NR eligible or listed historic building USNs within one mile of the 5-foot deepening APE. These are Fort Tompkins Quadrangle (Contributing element to the Fort Wadsworth National Register Listed Historic District) USN 8501.000367) and Guard House (NR-eligible, Non-Contributing element to Rosebank United States Coast Guard Station [08501.003366] USN 8501.003056).

7.1.2.2 Historic Resources within the Construction Limits

The NR eligible Bayonne and Verrazano Bridges cross over the construction limits APE.

7.1.2.3 Historic Resources within the 500-Foot Blasting Zone

There are no additional historic resources in the 500-foot blasting zone. The same two NR eligible resources (Bayonne Bridge and Faber Park) are within the 500-foot blasting zone.

7.2 New Jersey

7.2.1 4-Foot Deepening

7.2.1.1 Historic Resources within One Mile of the APE

In New Jersey there are 26 NR historic resources and districts within one mile of the APE (Table 5). Four resources are listed on the NR, while the other 22 are eligible for the NR.

7.2.1.2 Historic Resources within the Construction Limits

Two resources are within the construction limits. These are the Bayonne Bridge (3821) and Newark Bay Bridge (2666), both of which are eligible for the NR. These resources are presented as bold and italic in Table 5.

7.2.1.3 Historic Resources within the 500-Foot Blasting Zone

Within the 500-foot blasting zone, there are 2 historic resources that are all eligible for the NR. These are the Bayonne and Newark Bay Bridges.

Table 5. Historic Resources within One Mile of the APE in New Jersey.

Number	Name	Eligibility
3821	<i>Bayonne Bridge</i>	<i>Eligible (Indv.)</i>
2671.004	Shipping Factory	Listed (HD)
2671.005	Rolling Mill	Listed (HD)
2666	<i>Newark Bay Bridge</i>	<i>Eligible (Indv.)</i>
4622	Robbins Reef Light Station	Listed (Indv.)
	Pier Number 2 (Atlas Yacht Club Pier)	Eligible INDV
	Port Johnson Historic Sailing Vessels Historic District	NR Eligible
	Matowoc (V54)	Eligible HD
	Estelle Krieber (V60)	Eligible HD
	Occidental (V68)	Eligible HD
	H.W. Brown/Macerata (V67)	Eligible HD
	J.F. Penrose (V70)	Eligible HD
	Molfetta (V72)	Eligible HD
	James Howard (V73)	Eligible HD
	Smith and Terry #4/City of Austin (V74)	Eligible HD
	Vessel V22	Eligible INDV
	Electro Dynamic Motor Company (ELCO) Historic District	NR Eligible
	Vessel V21	Eligible INDV
	Vessel V10	Eligible INDV
	Vessel V9	Eligible INDV
	Abandoned Signal System	Eligible HD
	Abandoned Pole Lines	Eligible HD
3500	Central Railroad of New Jersey Main Line Corridor Historic District	Eligible
2671	Singer Factory Historic District	Listed
4186	Newark and Elizabeth Branch of the Central Railroad of New Jersey	Eligible
4420	Pennsylvania Railroad New York Bay Branch Historic District	Eligible

7.2.2 5-Foot Deepening

7.2.2.1 Historic Resources within One Mile of the APE

There are no additional historic resources or districts within one mile from the 5-foot deepening APE.

7.2.2.2 Historic Resources within the Construction Limits

The same two historic bridges are located within construction limits (Newark Bay Bridge and Bayonne Bridge).

7.2.2.3 Historic Resources within the 500-Foot Blasting Zone

There are no additional historic resources or districts within 500-foot buffer.

8. Summary

The selected plan is the 5-foot deepening. The summaries of both the 4-foot and the 5-foot plans are presented for comparison as the initial analysis started with the 4-foot deepening.

8.1 Resources within the Construction Limits

8.1.1 4-Foot Deepening

Within the construction limits, there is one New York archaeological USN (historic shipwreck, Vessel Paul E. Thurlow KVK 37, USN 08501.002828) that is eligible for the NR, two New York historic resources (Verrazano Narrows Bridge and the Bayonne Bridge, both are NR eligible), and two New Jersey historic resources (Bayonne Bridge and Newark Bay Bridge, both eligible for the NR).

The eligible New York archaeological USN (Vessel Paul E. Thurlow KVK 37) was recorded and mitigated for during the previous harbor deepening. Since the district already mitigated for this resource, no future work will occur on the Paul E. Thurlow. Recordation was carried out to mitigate for the loss of the resource in 2008.

8.1.2 5-Foot Deepening

With the 5-foot deepening, there are no additional historic properties within the construction limits.

8.2 Resources within the 500-Foot Blasting Zone where Vibrations Could Occur

8.2.1 4-Foot Deepening

The APE includes a maximum 500-foot buffer area around known bedrock in the construction limits for vibrations. Precise locations where blasting will occur will be identified in PED, but for now in the Feasibility Phase, the assumption is being applied that blasting will occur in all locations where the channel bottom is bedrock. For this reason, the 500-foot buffer has been drawn around all known outcrops of bedrock within the construction limits (this data was gathered from the previous 50-foot harbor deepening). Within this 500-foot zone, there is a total of 9 NR eligible resources. This includes 5 NY archaeological USNs (all shipwrecks), 2 historic resources in New York (Bayonne Bridge and Faber Park), and 2 New Jersey historic resources (Bayonne and Newark Bay Bridges) (Table 6). The NJ historic resources were pulled from LUCY in July 2020, whereas the archaeological site data is from 2012 and will need to be updated once the NJ SHPO reopens. Appendix B presents the resources that have been identified within the 500-foot buffer zone.

8.2.2 5-Foot Deepening

With the 5-foot deepening, there are no additional resources within the 500-foot blasting zone. The same 2 NR eligible New Jersey historic resources are within the 500-foot zone as well as the same 2 New York Historic Resources, and 5 NR eligible York archaeological USNs.

9. Summary of Potential Impacts

9.1 4-Foot Deepening

- Vessel *Paul E. Thurlow*: this resource has already mitigated for, so no future work is required for this resource.
- Two extant historic bridges over APE (Bayonne Bridge and Verrazano Narrows Bridge): The District will avoid impacting the historic bridges in the project area. During PED, if it is determined that the bridges could sustain adverse impacts from vibrations from blasting, they will be vibration monitored with seismographs to ensure that they do not sustain vibrations strong enough to impact them.
- Removed historic bridge (Newark Bay Bridge): This bridge is no longer extant over Newark Bay. Some pilings from it remain on the eastern edge of where the bridge stood. The NR eligible elements of this bridge will be avoided if possible.
- 9 NR eligible resources within 500-foot bedrock blasting zone: To avoid damage to the NR eligible structures within the 500-foot blasting zone, these structures will be monitored for vibrations during the blasting. Seismographs will be used to ensure that the structures do not sustain vibrations reaching or exceeding 0.5 PPV (peak particle velocity), which is the maximum allowable vibrations for historic structures established by the U.S. Bureau of Mine Safety. These standards were adopted by the state of New Jersey and by the City of New York, Department of Buildings (within Technical Policy and Procedure Notice #10/88 [TPPN 10/88]). Coordination with the SHPOs will be carried out during PED to identify the zones that actually may experience vibrations and what structures are appropriate to monitor for vibrations within the APE. The District will ensure that these structures do not endure vibrations strong enough to cause damage to them, so the blasting action with vibration monitoring is determined to have no adverse effect to historic properties as well.

9.2 5-Foot Deepening

- There is no difference in affect to known cultural resources between the 4-foot and 5-foot plans.

11. Selected Plan and Effect Determination

The District has selected the 5 foot depth as the recommended plan. Based on the above information, the District has determined that this project is likely to result in adverse impacts to historic properties. There will likely not be an adverse impact to known resources, but it is very likely that the survey work required to complete the identification and evaluation of historic

properties will discover NR eligible resources based on the number of NR eligible resources nearby the APE.

10. Future Work Required

There is much future survey work that needs to occur to finish the identification and evaluation of historic properties within the APE. This is because the recommended plan for construction will be refined in the PED phase as more information is gathered and the designs are developed.

Surveys that would need to be completed are as follows: 1) new remote sensing surveys of the edges of all channels to be deepened, 2) a remote sensing survey of all areas to be widened, 3) the recommendations from the geoarchaeological investigation will be followed to identify potentially submerged Native American sites within the Harbor, 4) and cultural resources surveys of any environmental mitigation sites. The vibration monitoring survey is being undertaken by the District's engineering division, and they will be supplying the results to the project archaeologist for coordination with the interested parties.

12. Programmatic Agreement

In accordance with Section 106 of the NRHP and its implementing regulations (36 CFR 800) the District is addressing adverse effects to historic properties through a Programmatic Agreement (PA). A final PA is projected to be executed prior to the finalization of this report and has been released for review and comment by the public and will be included in the Feasibility Report/Environmental Assessment. The stipulations in the PA have been subject to revision and addition as a result of review by the public as well as consultation with the Delaware Nation, the Delaware Tribe, the Shawnee Tribe, the Shinnecock Indian Nation, the Stockbridge Munsee Community, New York City Landmarks Preservation Commission, and New York and New Jersey State Historic Preservation Offices. Requirements of the PA currently include:

- Conduct identification and evaluation of submerged historic cultural resources, submerged Precontact cultural resources, and terrestrial historic resources.
- As plans are refined and mitigation and staging areas are identified the New York District will consult with the appropriate SHPO(s) to develop plans to complete the identification of historic properties.
- If there are historic properties within the APE, the New York District will consult with the appropriate SHPOs and other consulting parties to determine if the Undertaking will have an adverse effect on the historic properties identified.
- The New York District's preferred treatment of historic properties is avoidance, but if in consultation with the SHPO(s) avoidance is determined to be infeasible, the New York District shall develop and implement treatment/mitigation plans.

The PA will guide the New York District through the PED and Construction phases of the project to ensure that impacts to historic properties are avoided, minimized or mitigated and that the work is carried out in consultation with the appropriate SHPOs and consulting parties.

There is a potential that the survey work that will be carried out in PED will identify resources that will be adversely impacted by the project. In this case, the District will prepare a treatment plan to be approved by the appropriate SHPO(s) to mitigate the adverse effects.

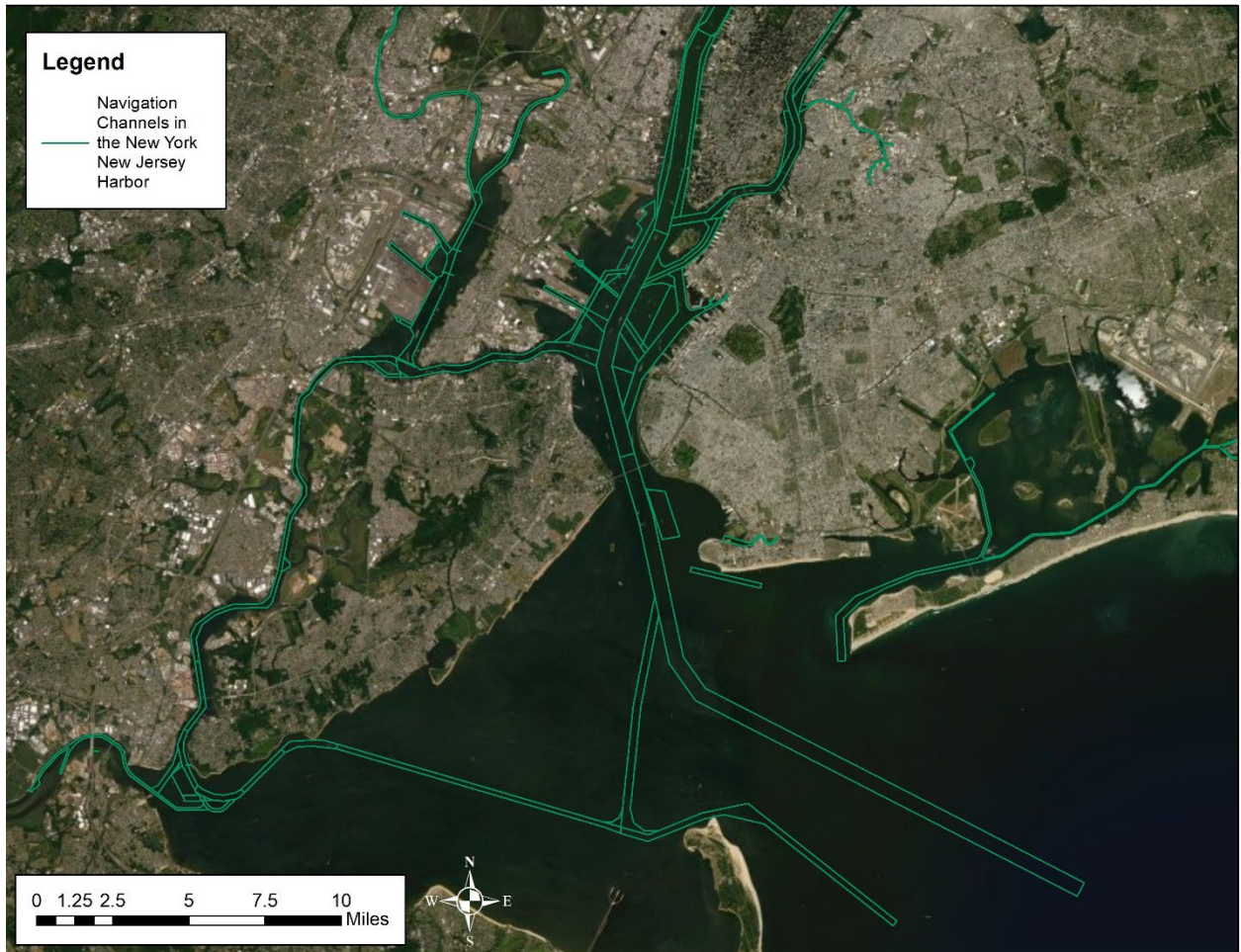


Figure 1. Federal Navigation channels in the New York New Jersey Harbor.

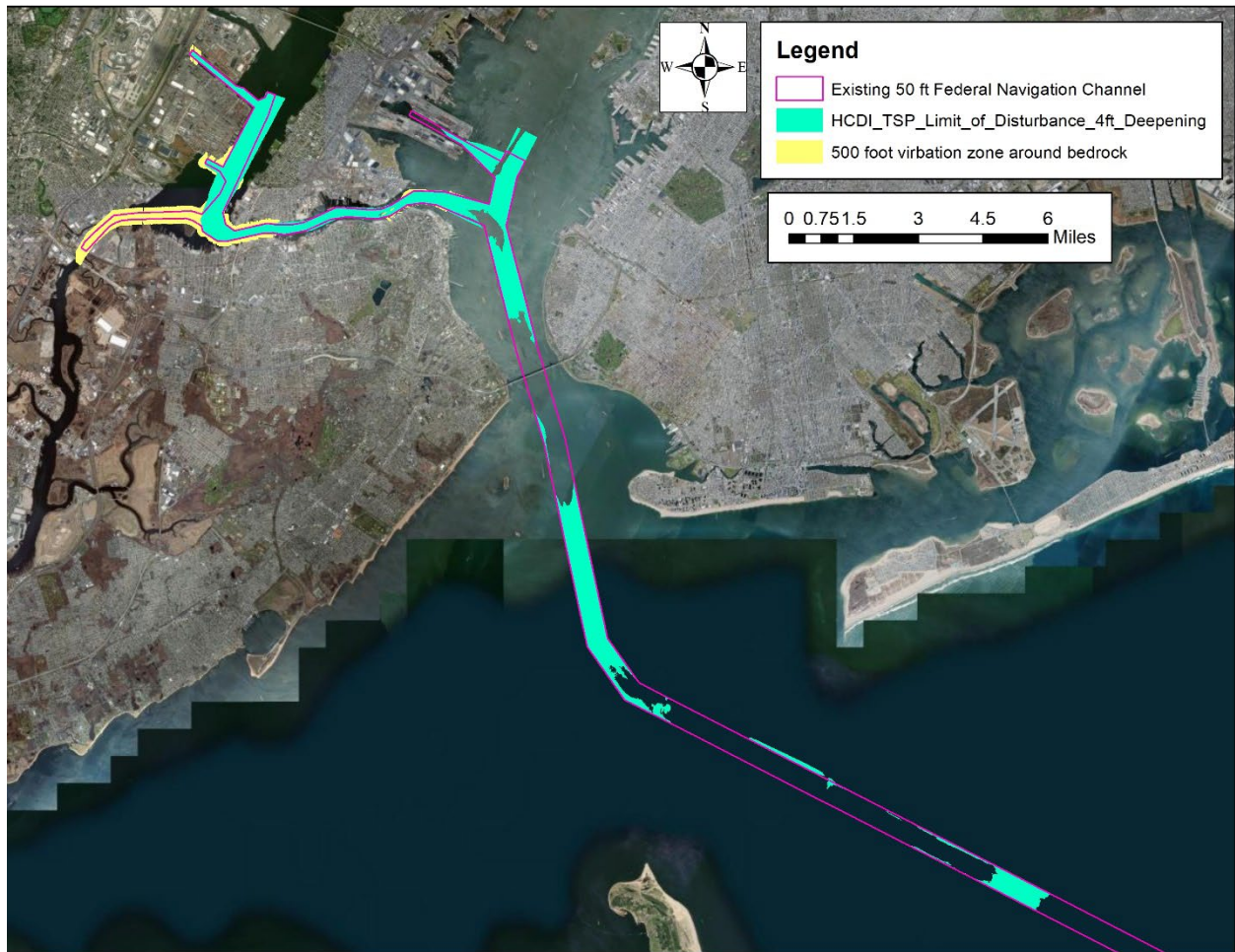


Figure 2. Tentatively selected plan (TSP) for the Harbor Deepening Improvements (HDCI) Project and the boundaries of the existing 50-foot channel. This data is for the 4-foot deepening alternative. The Recommended Plan is seen in Figure 3.



Figure 3. The Recommended Plan for the HDCI project is the 5-foot deepening. The difference in footprint of a 4-foot deepening versus a 5-foot deepening is shown here.

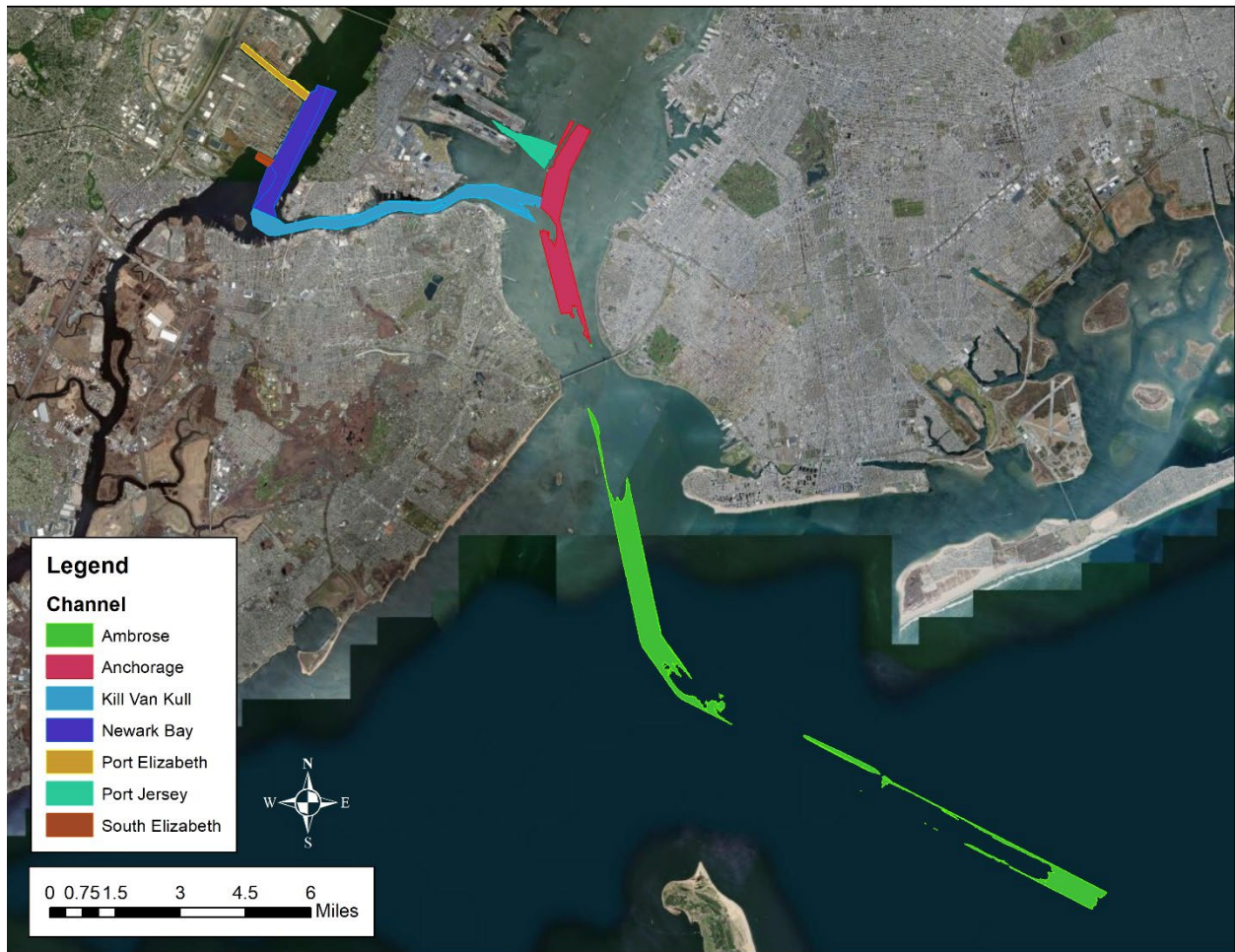
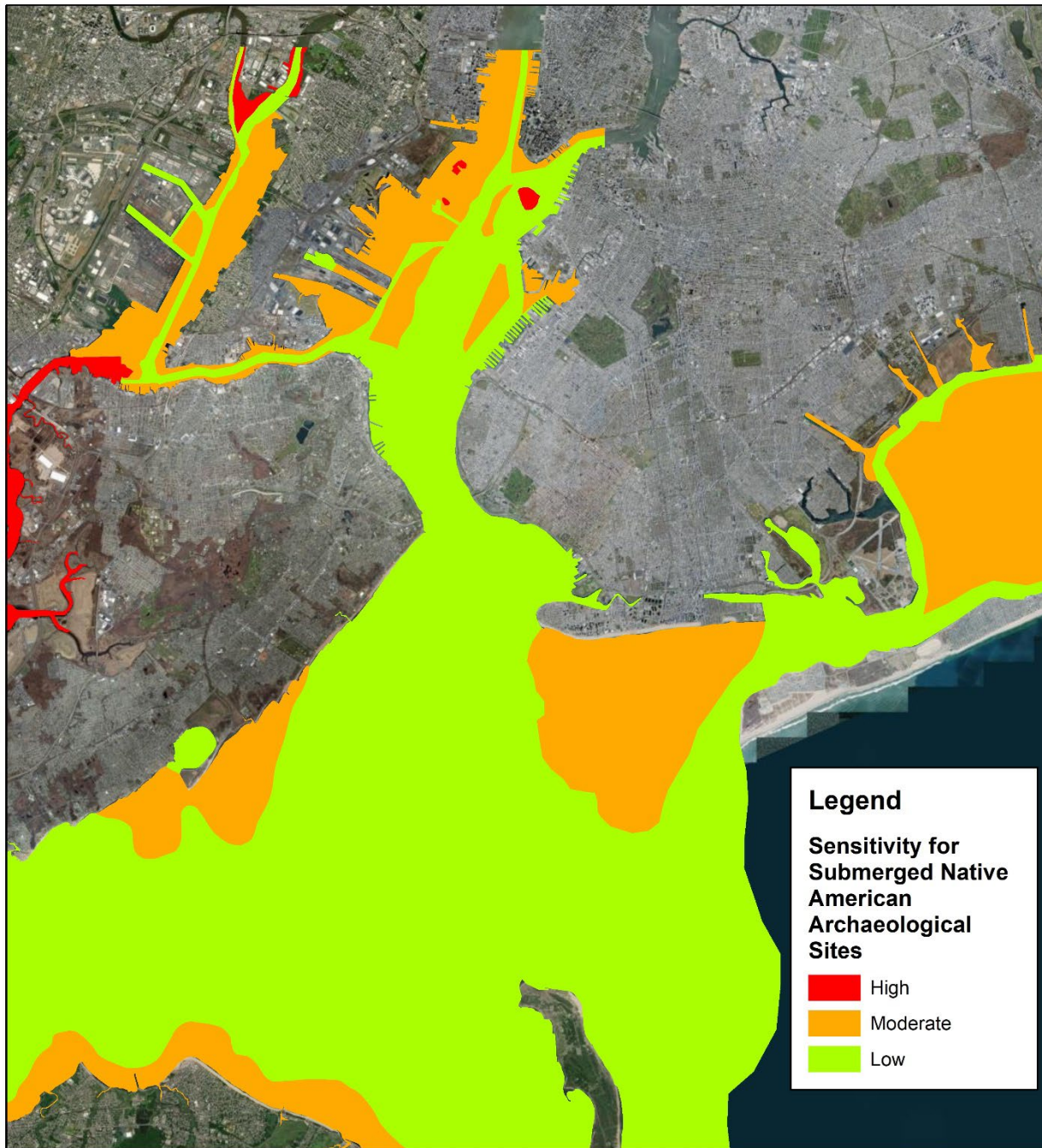


Figure 4. Federal Navigation Channels involved in HDCI Recommended Plan.



**Sensitivity for Submerged Native American Sites
for the New York and New Jersey Harbor
Deepening Channel Improvement Feasibility Study**



0 0.5 1 2 3 4 Miles



Figure 5. Probability model for submerged Native American sites in the Harbor.

13. References

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2008a *Recordation of Six (6) Vessels in Connectional with the New York and New Jersey Harbor Navigation Study, Upper and Lower Bay, Port of New York and New Jersey, Staten Island, Richmond County, New York, Elizabeth, Union County, and Bayonne, Hudson County, New Jersey. 2 volumes.*

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Appendix A. NY NR Eligible and Listed Resources within One Mile of APE

New York National Register eligible and listed resources within one mile of the APE. Bold resources are within the 500-foot blasting zone. Bold and italic resources are within the construction limits.

USN	Name	NR Eligibility
4701.017159	Building 114 - Civilian Personnel/Clinic (1962)	Eligible
4701.017062	Houses At 9102-9124 Ridge Blvd.	Eligible
4701.017395	Tudor Revival Apartment Building	Eligible
4701.00015	Firehouse: Engine Co. 242	Eligible
4701.014827	Farrell House (C. 1849)	Eligible
4701.014818	Fort Hamilton: Bldg 113 (Recreational Center, 1925; Aka Garrison HQ)	Eligible
4701.015278	Denyse Wharf	Eligible
4701.014819	Fort Hamilton: Bldg 201 (Officers' Quarters - 1911)	Eligible
4701.015287	Fort Hamilton High School	Eligible
4701.015468	Verrazano-Narrows Bridge	Eligible
8501.002425	Masonic Temple	Eligible
8501.000238	Clifton Residence	Eligible
8501.00017	Firehouse: Medora Hook & Ladder Co.	Eligible
8501.00218	Former Leo's Empire Theatre	Eligible
8501.003053	Station Keeper Office (Building 12) Demolished Ca.	Eligible
8501.003049	Shops (Building 8) Demolished Ca. 1997	Eligible
8501.002155	Staten Island Plate Glass / Commercial	Eligible
8501.003051	Liquor Store And Reserve Office (Bldg 10) Demolish	Eligible
8501.002157	Wexler's /Commercial	Eligible
8501.000208	St. Mary's Rectory	Eligible
8501.000983	Res	Eligible
8501.002924	Standard Varnish Works Factory Office Building (Blt. 1892-93; Colin Mclean, Builder)	Eligible
8501.003045	Bldg. 4 Quarters For Jr. Medical Officers (1938) (Eligible
8501.002193	St. Mary Of The Assumption R.C. Church	Eligible
8501.002387		Eligible
8501.002153	Staten Island Plate Glass	Eligible
8501.002383		Eligible
8501.000556	Summerfield United Methodist Church	Eligible
8501.002188	Second Empire Frame Residence (Ca. 1874)	Eligible
<i>8501.002781</i>	<i>Bayonne Bridge (Route 440)</i>	<i>Eligible</i>
8501.001052	U.S. Lighthouse Depot: Foundry	Eligible
8501.002149	Residence	Eligible

8501.00051	Garner Mansion (Aka Villa Bldg) With Annex Building Add'n (Training School For Nurses)	Eligible
8501.001454	Residence	Eligible
8501.000511	Garner Mansion Gatehouse	Eligible
8501.002152	3-Sory Second Empire Comm'l Bldg. (Ca. 1885; Alter	Eligible
8501.002845	Sacred Heart R.C. Church	Eligible
8501.002953	Living Quarters #1 (1939; Former Medical Officer I	Eligible
8501.003046	Living Quarters #5 (Emergency & Pharmacists Quarte	Eligible
8501.003044	Living Quarters #3 (Demolished Ca. 1997)	Eligible
8501.002923	Art Deco Apartment Bldg. (1931)	Eligible
8501.000209	St Mary's RC Church	Eligible
8501.003047	Living Quarters #6 (Contributing) (Emergency & Att	Eligible
8501.002386		Eligible
8501.002385	School - P S 20 (Old Building)	Eligible
8501.002388	Tompkinsville Play Center (Joseph H. Lyons Pool)	Eligible
8501.000984	Res	Eligible
8501.000995	Res	Eligible
8501.001	120th Police Precinct (LPC) (1920-23; Neo-Renaissa	Eligible
8501.00105	U.S. Lighthouse Depot: Lamp Shop	Eligible
8501.001001	Staten Island Family Courthouse (LPC) (1929-31; S	Eligible
8501.003041	P.S. 19 (1929, Walter C. Martin; Add'l 1952 - M. Radoslovich)	Eligible
8501.003043	Officers Quarters 1922 (Contributing)	Eligible
8501.002793	Industrial/Office Building	Eligible
8501.003055	Storage Shed (Building 14) Demolished Ca. 1996	Eligible
8501.002595	New York Public Library, Port Richmond Branch	Eligible
8501.002823	St. Peter's R.C. Church: Rectory Bldg	Eligible
8501.003048	Immigration Office (Building 7) Demolished	Eligible
8501.000539	House	Eligible
8501.000593	Stephen D. Barnes House	Eligible
8501.002728	Ralph Mckee Vocational Hs	Eligible
8501.001008	Residence	Eligible
8501.000551	Engine Co. 158 Hook & Ladder	Eligible
8501.002191	Rectory For St. Mary Of The Assumption R.C. Church	Eligible
8501.002384	88 Westervelt Ave	Eligible
8501.002915	Verrazano-Narrows Bridge (See 04701.015468)	Eligible
8501.000996	Res	Eligible
8501.003058	Summer House/Gazebo (Pre-1895) Contributing	Eligible
8501.000993	Staten Island Savings Bank (1936)	Eligible
8501.002422	Pavillion On The Terrace - Davis / Robertson House 1835	Eligible
8501.000705	House	Eligible
8501.002819	St. George Theatre	Eligible

8501.003052	Garages (Building 11) Demolished Ca. 1996	Eligible
8501.000992	New York Public Library St George Branch	Eligible
8501.002985	St. Mary Of The Assumption School	Eligible
8501.001011	St. Peter's R.C. Church	Eligible
8501.00021	St. Mary's School	Eligible
8501.002177	Square Barber Shop	Eligible
8501.002145	Masonic Temple	Eligible
8501.001407	79 Ladder Co Fire Station	Eligible
8501.002189	Faber Park	Eligible
8501.000538	House	Eligible
8501.000994	Commercial	Eligible
8501.002156	Commercial	Eligible
8501.002725	Curtis H.S.	Eligible
8501.003054	Garage (Building 13) Demolished Ca. 1997	Eligible
8501.000997	Res	Eligible
8501.001474	Tyler House (Locally Designated)	Eligible
8501.00305	U.S. Customs Building (Building 9) Demolished Ca.	Eligible
8501.002158	Commercial	Eligible
8501.003057	North And South Pier (Rebuilt 1996) Non-Contributi	Eligible
8501.002154	Former Staten Island National Bank & Trust Co. (Ca	Eligible
8501.000585	Bldg	Eligible
8501.001027	Staten Island Museum	Eligible
8501.002438	Staten Island Federal Office Building	Eligible
8501.001396	156 Engine Company/Fire House	Eligible
8501.001192	Schoverling House (Locally Designated)	Eligible
8501.001009	Pavillion On The Terrace	Eligible
4701.018691	Xavier Ian High School	Eligible
4701.018695	St. Mary's Antiochian Church	Eligible
4701.018689	Neo-Classical House	Eligible
4701.01869	Neo-Classical House	Eligible
8501.003365	Experimental Battery	Eligible
8501.003732	St. Peter's Convent	Eligible
8501.003734	Former St. Peter's High School (Current P.S. 59 Harbor View School)	Eligible
8501.003701	Griffith Block, 2044 Richmond Terrace, Staten Island	Eligible
8501.003933		Eligible
8501.003936		Eligible
8501.003934		Eligible
8501.003922	German Evangelical Church Of St. John	Eligible
8501.003938	No Name	Eligible
8501.003935		Eligible

8501.002853	U.S. Quarantine Grounds Marine Hospital & Cemetery	Eligible
4701.008919	Officers Club Bldg #207 (Casemate Fort)	Listed
4701.00892	Fort Hamilton: Casemate Fort Sentry Booth / Bldg 220	Listed
8501.000152	Building A: Staten Island Museum	Listed
8501.002393	Macfarlane-Bredt House	Listed
8501.002513	Reserve Training Bldg (Bldg 356 - Non-Contributing)	Listed
8501.000148	Sailors' Snug Harbor: Bldg E	Listed
8501.00015	Building D: Noble Maritime Collection	Listed
8501.002395	Sailors' Snug Harbor: Secretary's House	Listed
8501.002714	Wharf/Jetty (Contributing)	Listed
8501.002148	Temple Emanu-El (Includes Temple & Education Bldg.	Listed
8501.000048	Battery Barbour (Contributing)	Listed
8501.002313	U.S. Lighthouse Depot: Stone Wall And Oil Vaults	Listed
8501.002404	Sailors' Snug Harbor: Fence	Listed
8501.000222	St. John's Episcopal Church	Listed
8501.0024	Sailors' Snug Harbor: Commandant's House	Listed
8501.001051	U.S. Lighthouse Depot Complex - Old Lamp Shop	Listed
8501.002789	Christ Church New Brighton	Listed
8501.00216	The Reformed Church On Staten Island	Listed
8501.002394		Listed
8501.000151	Building B: Staten Island Museum	Listed
8501.002398	Sailors' Snug Harbor: Baker's Cottage	Listed
8501.000223	St. John's Rectory	Listed
8501.000055	Battery Turnbull (Contributing)	Listed
8501.002501	Warehouse (Former Bldg. 306 Now Is Bldg. 311 (Non-Contrib)	Listed
8501.002402	Sailors' Snug Harbor: Infirmary	Listed
8501.000526	Dr. Samuel Mackenzie Elliott House	Listed
8501.002512	Police Station (Bldg 354 - Non-Contributing)	Listed
8501.000747	William S. Pendleton House	Listed
8501.001436	Kreuzer-Pelton House	Listed
8501.000264	Alice Austen House	Listed
8501.000999	Richmond County Courthouse	Listed
8501.002314	1 Bay Street, Staten Island	Listed
8501.002594	Sailors' Snug Harbor: Ferry Landing	Listed
8501.002441	St. John's Parish House	Listed
8501.002541	Housing (Bldg 442 - Non-Contributing)	Listed
8501.000146	Snug Harbor: Veteran's Memorial Hall	Listed
8501.000145	Sailors' Snug Harbor: Theatre (Music Hall)	Listed
8501.000694	Judge Jacob Tysen House	Listed
8501.001166	Brighton Heights Reformed Church	Listed

8501.000052	Battery Hudson (Contributing)	Listed
8501.002761	Standard Oil Co. No. 16 (Harbor Tug)	Listed
8501.001042	Us Lighthouse Depot Complex - North Warehouse	Listed
8501.002397	Sailors' Snug Harbor: Gardener's House	Listed
8501.002396	Sailors' Snug Harbor: Engineer's Cottage	Listed
8501.000698	Hamilton Park Cottage	Listed
8501.001406	Calvary Presbyterian Church	Listed
8501.00104	Us Lighthouse Depot Complex - Old Administration Building	Listed
8501.002403	Sailors' Snug Harbor: Pedestrian Gatehouse	Listed
8501.002399	Sailors' Snug Harbor: Farmer's Cottage	Listed
8501.000704	House	Listed
8501.002737	West Bank Light Station	Listed
8501.000149	Building C: Newhouse Center For Contemporary Art	Listed
8501.000144	Sailors' Snug Harbor: West Gatehouse	Listed
8501.002401	Snug Harbor: Building G	Listed
8501.000366	Battery Weed; Fort Wadsworth (Contributing)	Listed
8501.000773	Sailors' Snug Harbor	Listed
8501.000772	Neville House	Listed
8501.001043	U.S. Lighthouse Depot: Laboratory	Listed
8501.000736	New Brighton Village Hall (Demolished Post 2003)	Listed
8501.000998	Staten Island Borough Hall	Listed
8501.003361	Richmond Terrace Cemeteries	Listed
8501.003731	Building H: School Of Fine & Applied Arts And Gallery	Listed
8501.003997	Snug Harbor: Building R - Great Hall	Listed
8501.003991	Snug Harbor: Building N - World Trade Center Educational Tribute	Listed
8501.003996	Snug Harbor: Building F - Staten Island Conservatory Of Music	Listed
8501.003992	Snug Harbor: Building L - Maintenance	Listed
8501.00396	Governor's House	Listed
8501.00399	Building J	Listed
8501.003993	Weissglass Gazebo	Listed
8501.003987	East Gate	Listed
8501.003998	Carl Grillo Glass House	Listed
8501.003989	Snug Harbor: Building P - Admin	Listed
8501.003994	Snug Harbor: Building K -Matrons House	Listed
8501.003995	Snug Habror: Building Y - Carpenter's Shop	Listed
8501.003988	Building M	Listed

Appendix B. NR Eligible or Listed Resources within 500-Foot Blasting Zone

National Register eligible or listed resources within the 500-foot blasting zone of the 4-foot deepening.

State	Description	Number	Name	Eligibility	Historic District
New York	Archaeological USN	08501.00 2827	Vessel fish hawk KVK 33	Eligible	
New York	Archaeological USN	08501.00 2703	V-45 WOOD DREDGE	Eligible	
New York	Archaeological USN	08501.00 2825	Balanced Floating Dry Dock KVK 38	Eligible	
New York	Archaeological USN	08501.00 2826	Suction Dredge KVK 36	Eligible	
New York	Archaeological USN	08501.00 2828	Vessel Paul E. Thurlow KVK 37	Eligible	
New Jersey	Historic Resource	3821	Bayonne Bridge	Eligible (Indv.)	
New Jersey	Historic Resource	2666	Newark Bay Bridge	Eligible (Indv.)	
New York	Historic Resource	08501.00 2781	Bayonne Bridge (Route 440)	Eligible	
New York	Historic Resource	08501.00 2189	Faber Park	Eligible	

Appendix C. Programmatic Agreement

PROGRAMMATIC AGREEMENT
AMONG
THE U. S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICER
AND
THE NEW YORK STATE HISTORIC PRESERVATION OFFICER
REGARDING
NEW YORK AND NEW JERSEY HARBOR DEEPENING
CHANNEL IMPROVEMENTS PROJECT
ESSEX, HUDSON, MONMOUTH AND UNION COUNTIES, NEW JERSEY
KINGS, QUEENS AND RICHMOND COUNTIES, NEW YORK

WHEREAS, the U.S. Army Corps of Engineers, New York District, (New York District), was authorized to construct the New York and New Jersey Harbor Navigation Project by Section 101(a)(2) of the Water Resources Development Act of 2000, which included deepening the federal navigation channel in the New York and New Jersey Harbor (the Harbor) to 50 feet. Construction of the 50 foot channel was completed in 2016. In March 2018, an Initial Appraisal Report, in compliance with Section 216 of WRDA 1970 was completed to determine if there was potential Federal interest to undertake modifications to the existing 50 foot Harbor Navigation Project.

WHEREAS, the Initial Appraisal Report made the recommendation to undertake a new feasibility study to determine if there is a Federal interest in deepening and/or widening the 50 foot channels to allow larger vessels to use the Harbor. This study, the New York and New Jersey Harbor Deepening Channel Improvements (HDCI) Study, is now being undertaken to address improvements, including deepening of existing channels up to an additional 5 feet, and in some areas resulting in depths of up to 60 feet to allow for safety clearance, and widening the width of the existing channels to accommodate larger vessels (the design vessel is the 18,000 Maersk Triple E), to use the channels (Undertaking). The Programmatic Agreement (PA) will be used to guide the Section 106 process for the HDCI project. The New York District is the lead federal agency for this Undertaking;

WHEREAS, the HDCI Feasibility Study is investigating navigation improvements to eight channels in the Harbor (Ambrose, Anchorage, Port Jersey, Kill Van Kull, Arthur Kill, Newark Bay, South Elizabeth, and Elizabeth Channels) that comprise the three main pathways in the Harbor (Port Jersey, Port Elizabeth, and Howland Hook), which will permit access by larger, deeper-draft vessels to the four main container terminals (at Port Elizabeth: A.P.M and Maher; at Port Jersey: Global Container Terminal Bayonne; at Howland Hook: Global Container Terminal New York). Navigation improvements consist of channel deepening, widening, and realignment;

WHEREAS, New York District is developing the designs for the project on a phased basis. This means that details of the recommended plan will be refined in the Preconstruction, Engineering and Design (PED) Phase and therefore the final Area of Potential Effect (APE) cannot be determined at this time. In addition to this, the New York District has determined the need for additional surveys to complete the identification of historic properties that may be affected by the

project. Because of this, the New York District will be conducting the Section 106 process on a phased basis to keep pace with the project designs. This PA will be used to guide the phased Section 106 process and was developed pursuant to Title 36 of the Code of Federal Regulations Part 800, which provides regulations for implementing Section 106 of the National Historic Preservation Act;

WHEREAS, the Tentatively Selected Plan is an up to 5-foot deepening of the federal navigation channels from a depth of 50 feet to 55 feet;

WHEREAS, the New York District has defined the APE as all of the federal navigation channels to be deepened five feet, all areas where the channels are to be widened, staging and mitigation areas, and a 500 foot buffer around areas that will require blasting of bedrock which could produce vibrations that have the potential to result in adverse impacts to historic properties. In locations where blasting will be undertaken the APE will encompass near-shore and on-shore areas within zones anticipated to experience a certain force from the blast. Now during the feasibility stage, USACE Engineers have estimated that only locations within 500 feet of any blasting could be impacted by vibrations. At this stage, the APE for the blasting is defined as a 500 foot buffer around all known areas of bedrock within the construction limits, but this APE will be revisited in the PED Phase when the exact locations of blasting, their depths, the rock material types, and blasting methodology are known.

WHEREAS, the New York District will apply the National Register Criteria to properties identified within the APE on a phased basis as locations are identified to be part of the APE;

WHEREAS, the New York District has determined, pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) that this Undertaking has the potential to adversely affect documented historic properties and properties that have not yet been identified, but could be eligible for the NRHP;

WHEREAS, archaeological and geoarchaeological surveys were carried out for all parts of the harbor that were deepened to 50 feet deep during the previous Harbor Deepening Project which provides a baseline for this current project;

WHEREAS, during the previous Harbor Deepening Project, an investigation was carried out to map the Harbor's potential to hold submerged Native American sites (Schuldenrein et al. 2014). This investigation found that the area from Shooter's Island west down the Arthur Kill has high probability to hold submerged Native American sites, the existing navigation channels have low potential, and most of the other areas have medium potential (Appendix A);

WHEREAS, during the previous Harbor Deepening Project, 100 feet around the edges of all existing navigation channels to be deepened and all areas of the Harbor's channels that had never been dredged were surveyed with remote sensing technology to locate any submerged historic shipwrecks. These remote sensing surveys identified six historic shipwrecks that were eligible for the NRHP. Since the adverse impact to these shipwrecks was unavoidable, the District developed a treatment plan in coordination with the SHPOs and interested parties to mitigate for their loss which included recordation of the vessels and the salvage of several elements from

them to be displayed in museums;

WHEREAS, at this time, the New York District has identified one historic property, within the construction limits portion of the APE. This is the *Paul E. Thurlow* [NYSHPO USN 08501.002828], which is eligible for the NRHP. This vessel was recorded by the New York District during the prior harbor deepening project as mitigation for its loss. This vessel is believed to remain extant within the APE. The mitigation activities were carried out by the New York District as part of the previous Harbor Deepening Project and no further work will be undertaken on it for this Undertaking;

WHEREAS, three bridges that are eligible for the NRHP cross over the APE; the Bayonne Bridge (NYSHPO USN 8501.00278 and NJSHPO 3821), the Newark Bay Bridge (NJSHPO 2666), and the Verrazano Narrows Bridge (NYSHPO USN 4701.015468). Blasting has the potential to adversely affect these resources if it is done near these structures;

WHEREAS, the New York District has identified 9 National Register (NR) eligible or listed resources within the 500-foot blasting zone around known bedrock. All nine resources are National Register eligible, seven are in New York and two are in New Jersey. Five of these resources are shipwrecks in New York waters that the New York District recorded for the previous harbor deepening. These are: Vessel fish hawk KVK 33 (USN 08501.002827), V-45 WOOD DREDGE (USN 08501.002703), Balanced Floating Dry Dock KVK 38 (USN 08501.002825), Suction Dredge KVK 36 (USN 08501.002826), Vessel Paul E. Thurlow KVK 37 (USN 08501.002828). These five vessels were already mitigated for during the previous Harbor Deepening Project, so no further work will be required for the current project. Two other historic resources are also located in New York and are: Faber Park (USN 08501.002189) and Bayonne Bridge (Route 440) (USN 08501.002781). The remaining two historic resources are in New Jersey: Bayonne Bridge (NJ 3821), Newark Bay Bridge (NJ 2666);

WHEREAS, the New York District has identified several interested parties to participate in the Section 106 consultation process and study planning, to include the Stockbridge Munsee Mohican Tribe, Delaware Tribe, Delaware Nation, Shawnee Tribe, Shinnecock Indian Nation, and the Unkechaug, New York City Landmarks Preservation Commission (NYLPC), the South Street Seaport Museum, and the Intrepid Sea, Air, and Space Museum (Appendix B);

WHEREAS, the New York District is involving the public through the study's National Environmental Policy Act (NEPA) process, and will include the draft PA and the Historic Properties Summary in the draft Environmental Assessment when it was released for public review and solicitation of public comment was included in the public meetings;

WHEREAS, the New York District has, and will continue to, consult with the NJSHPO, the NYSHPO and NYLCP in regard to portions of the APE within their relevant areas of responsibility and jurisdiction: and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), the New York District has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation and its intent to prepare this PA and the ACHP has declined to

participate; and

NOW, THEREFORE, the New York District, NJSHPO and the NYSHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

Stipulations

The New York District shall ensure that the following measures are carried out:

I. IDENTIFICATION AND EVALUATION

A. All identification and evaluation activities will take place after the Feasibility Report is approved during the PED phase, when the area of potential effect (APE) for this project is better defined. To complete the identification and evaluation activities the New York District shall provide the appropriate Signatories, all plans and reports, including but not limited to all scopes of works, Draft Reports, and Final Reports.

1. Submerged Historic Cultural Resources

a. All areas of the current Undertaking's APE that were not covered by the surveys for the previous 50-foot Harbor Deepening will be surveyed with remote sensing technology. Once New York District receives the plan sheets that have the construction limits, the New York District shall conduct remote sensing surveys for all areas within the APE that have not been previously surveyed. The purpose of this is to identify potential shipwrecks or other submerged historic resources.

2. Submerged Precontact Cultural Resources

a. The New York District intends to follow the recommendations from the geoarchaeological investigation carried out for the 50-foot Harbor Deepening Project to map the Harbor's potential to hold submerged Native American sites (Schuldenrein et al. 2014) prior to construction of the current Undertaking. This report identified areas within the harbor as high, medium, and low potential for encountering submerged Native American sites and recommended borings and geomorphic research to be conducted within each sensitivity level to search for Native American sites prior to construction. The recommendations include analyzing a number of sediment cores from each area of high and medium probability and conducting geomorphological work to investigate if any submerged Native American sites would be impacted by the Undertaking. No further work was recommended for areas falling within the low probability zone.

b. If submerged Native American cultural resources are identified through this investigation the New York District will coordinate with the appropriate Tribes and Signatories, to determine a plan for treatment of these resources.

3. Terrestrial Historic Resources

a. During PED the New York District, in coordination with the Signatories, shall determine the most appropriate buffer zone for blasting vibrations and to determine which historic properties fall within the APE, and which properties will require vibration monitoring. As the project progresses, additional areas may be added to the project, and these areas would need to be assessed for cultural resources, the process of which is outlined in this PA.

B. As additional areas are identified where construction activities will take place, the New York District shall consult with the appropriate Signatories to develop plans to complete the identification of historic properties within the remaining portion of the Study's APE. The appropriate Signatories, will provide comments on the scope of work and final plans within 30 calendar days of receipt.

C. The New York District shall revise plans to address comments and recommendations provided by the appropriate Signatories and other consulting parties prior to proceeding with identification and evaluation activities.

D. The New York District shall ensure that qualified professionals meeting the National Park Service professional qualifications for the appropriate discipline (National Park Service Professional Qualification Standards, Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation [48 FR 44738-39]) are used to complete all identification and evaluation plans related to this undertaking, to include archaeological surveys and testing, historic structure inventories, and documentation.

E. The New York District, the appropriate Signatories, shall consider the views of the public or interested parties in completing its identification and evaluation responsibilities.

F. The New York District shall maintain records of all decisions it makes related to the National Register eligibility of properties.

II. RESOLUTION OF ADVERSE EFFECTS

A. If there are historic properties within the Undertaking's APE, the New York District will consult with the appropriate SHPO(s) and other consulting parties to determine if the Undertaking will have an adverse effect on the historic properties identified.

B. The New York District's preferred treatment of historic properties is avoidance of effects to historic properties. The New York District shall, to the extent feasible, avoid historic properties through design changes. The New York District and the appropriate Signatories, shall consult to develop plans for avoiding impacts to historic properties. The New York District shall incorporate feasible avoidance measures into study activities as part of the implementation of the navigation improvements recommended in the Study. If, in consultation with the appropriate Signatories, avoidance is determined to be infeasible, the New York District shall develop and implement treatment/mitigation plans.

C. If it has been determined that treatment plans are required, the New York District will develop treatment plans that will identify the activities to be implemented to resolve adverse effects.

1. The New York District shall ensure that qualified professionals meeting the National Park Service professional qualifications for the appropriate discipline (National Park Service Professional Qualification Standards, Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation [48 FR 44738-39]) are used to develop and implement all treatment plans.

2. Treatment plans will include a description of the historic property, the adverse effect to the historic property, and the treatment to mitigate the adverse effect to the historic property.

3. Draft treatment plans will be reviewed by the appropriate Signatories. The Signatories include the New York District, New Jersey State Historic Preservation Office (SHPO) and the New York SHPO, herein referred to as "the Signatories". Work only occurring in one state will be reviewed by that state's SHPO, and work that will occur in both states will be reviewed by both SHPOs. The Signatories will have 30 calendar days to review the draft treatment plans and provide comments to the New York District.

4. The New York District will resolve all comments received. Once all comments have been agreed upon, a final treatment plan will be sent for signature to the appropriate Signatories.

5. After signing by the New York District and Signatories, the New York District shall file all treatment plans with the ACHP.

D. Treatment plans developed between the New York District and the Signatories, may include one or more of the following stipulations which address routine adverse effects that may occur to historic properties as a result of the Undertaking.

1. Recordation. The New York District shall consult with the appropriate Signatories or Historic American Building Survey/Historic American Engineering Record (HABS/HAER) to determine the appropriate level and type of recordation for affected resources. For historic properties with state and/or local significance, recordation shall be consistent with the requirements and standards of the Department of the Interior (October 1997). All documentation must be submitted to SHPO(s) and HABS/HAER for acceptance, prior to the initiation of Study activities, unless otherwise agreed to by the SHPO(s).

2. Salvage and Donation of Significant Structural Elements. Prior to removal, partial removal, or substantial alteration of historic properties, the New York District, in consultation with the SHPO(s), shall develop a salvage and donation plan to identify appropriate parties willing and capable of receiving and preserving the salvaged significant structural elements. The New York District shall submit the plans to the SHPO(s) for review and approval.

3. Data recovery for archaeological sites eligible under the National Register of Historic Places Eligibility Criterion D and others and data recovery and treatment of archaeological sites where data recovery will not result in a finding of no adverse effect. The New York District shall

conduct data recovery on archaeological sites following agreement on the perspective data recovery and treatment plans between the New York District, the SHPO(s) and the LPC where relevant, when the archaeological sites are eligible for National Register inclusion under additional Criteria than Criterion D (for the information which they contain) or when the full informational value of the site cannot be substantially preserved through the conduct of appropriate research to professional standards and guidelines. To the maximum extent feasible, data recovery and treatment plans shall be developed to take into account and mitigate for the fullest range of archaeological site values and significance. Prior to construction, the New York District shall develop (a) data recovery plan(s) for the affected NR Eligible archaeological site(s). The New York District shall submit the plan(s) to the appropriate SHPO(s) and the LPC, where relevant, for review and approval.

4. A blast plan will be developed in coordination with the appropriate SHPO(s) in areas where blasting is proposed. This plan will include provisions to limit vibrations experienced at historic properties resulting from any proposed blasting and will include a pre-blast and post-blast monitoring plan. Some blasting may be deemed not to pose a threat to historic properties. The blasting in the previous 50-Foot Harbor Deepening Project caused no effect to historic properties.

III. PUBLIC INVOLVEMENT

A. The New York District shall inform the public of this existence of the PA and the District's plan for meeting the stipulations of the PA. Copies of this agreement and relevant documentation prepared pursuant to the terms of this PA shall be made available for public inspection. Information regarding the specific locations of terrestrial and submerged archaeological sites, including potential wreck areas, will be withheld in accordance with the Freedom of Information Act and National Register Bulletin No. 29, if it appears that this information could jeopardize archaeological sites. Any comments received from the public related to activities identified by this PA shall be taken into account by the New York District. The New York District will share any public comments received with the Signatories of this PA.

1. The New York District shall develop, in coordination with the Signatories of this PA, publicly accessible information about the cultural resources and historic properties investigations for the Undertaking in the form of brief publication(s), exhibit(s), or website(s).

IV. CURATION

A. The New York District shall ensure that all collections resulting from the identification and evaluation of surveys, data recovery operations, or other investigations pursuant to this PA are maintained in accordance with 36 CFR Part 79 until the collection is turned over to the landowner. Minimally, the District will ensure that analysis is complete and final report(s) are produced and accepted by the SHPO(s) prior to the turnover of collections to the appropriate entity.

B. The New York District shall be responsible for consulting with the Signatories and landowners regarding the curation of collections resulting from archaeological surveys, data

recovery operations, or other studies and activities pursuant to this agreement. The New York District shall coordinate the return of collections to non-federal landowners. If non-federal landowners wish to donate the collection, the New York District, in coordination with the Signatories of this agreement, will determine an appropriate entity to take control of the collection.

C. The New York District shall be responsible for preparation of both federally-owned collections and their associated records, as well as non-federal collections and their associated records, donated for curation in accordance with the standards of the curation facility.

V. UNANTICIPATED DISCOVERY

A. The following language shall be included in the construction specifications of this project:

“When a cultural resource, including but not limited to archaeological sites, shipwrecks, standing structures, and properties of traditional religious and cultural significance to a federally-recognized tribe are discovered during execution of the project, the individual(s) who made the discovery shall immediately secure the vicinity and make a reasonable effort to avoid or minimize harm to the resource, and notify the Project’s Contracting Officer’s Representative (COR) and the New York District. All activities shall cease within a minimum of 250 feet from the inadvertent discovery (250-foot radius ‘no work’ buffer) until authorized by the District and the Project COR.”

B. If previously unidentified and unanticipated cultural resources are discovered during Project activities, the New York District shall cease all work in the vicinity of the discovery until it can be evaluated in accordance with 36 CFR Part 800.13 “Post-Review Discoveries.” Upon notification of an unanticipated discovery, the New York District shall implement any additional reasonable measures to avoid or minimize effects to the resource. Any previously unidentified cultural resource will be treated as though it is eligible for the NRHP until such other determination can be made.

C. The New York District shall immediately notify the Signatories to this PA and appropriate federally-recognized Tribes as appropriate, within 48 hours of the finding and request consultation to resolve potential adverse effects.

D. If the New York District and the relevant Signatories agree that the cultural resource is not eligible for the NRHP, then the suspension of work in the area of the discovery will end.

E. If the New York District and the relevant Signatories agree that the cultural resource is eligible for the NRHP, then the suspension of work will continue, and the District in consultation with all relevant Signatories will determine the actions to avoid, minimize, or mitigate adverse effects to the historic property and will ensure that the appropriate actions are carried out.

F. If the New York District and the relevant Signatories cannot agree on the appropriate course of action to address an unanticipated discovery or effects situation, then the New York District shall initiate the dispute resolution process set forth in Stipulation VIII.

VI. DISCOVERY OF HUMAN REMAINS

A. If any human remains and/or grave-associated artifacts are encountered during any of the investigations, including data recovery, the New York District will follow the NYSHPO's Human Remains Discovery Protocol (2018), the ACHP's Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects (February 23, 2007), the Native American Grave Protection and Repatriation Act, As Amended (PL 101-601), and the U.S. Army Corps of Engineers Tribal Consultation Policy (2013).

B. The following language shall be included in the construction specifications:

“In the event that human remains as burials or fragmentary remains are found, the following actions should be taken:

- The Contractor will stop work in the general area of the discovery immediately and report the discovery to the Contracting Officer/Contracting Officer Representative (KO/COR), who will call the appropriate New York or New Jersey Police Department at 911 and the NY Office of the Chief Medical Examiner and direct the call to the Forensic Anthropology Unit or the NJ Office of the Chief State Medical Examiner.
- The KO/COR will inform the District archaeologist who, as appropriate, will call the New York Landmarks Preservation Commission, the New York State Historic Preservation Office, the New Jersey State Historic Preservation Office and the relevant federally-recognized Tribes.
- At all times, the Contractor will treat human remains with the utmost dignity and respect.
- The Contractor will secure and protect the general area of the discovery (not less than fifty feet in all directions from the location of the discovery) from damage, vandalism, and disturbance until released by the KO/COR.
- The Contractor will leave human remains and/or associated artifacts in place and not disturb them. The Contractor will not collect skeletal remains or materials associated with the remains. Any displaced remains or those found after excavation will be turned over to the KO/COR immediately.
- The Contractor will not conduct any activities in the vicinity of the site until these steps have been completed and the site has been released by the KO/COR.
- The Contractor will continue to protect and secure the area until the site is released by the KO/COR.”

VII. ADMINISTRATIVE TERMS

A. Professional Qualifications and Standards

1. The New York District shall ensure that qualified professionals meeting the Department of the Interior (DOI) professional qualifications for the appropriate discipline (Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation [48 FR 44738-

39]) are used to develop and implement all treatment plans, and

2. All investigations carried out pursuant to this PA in New York State will be undertaken in accordance with the New York State Archaeological Council's Standards for Cultural Resources Investigations and the Curation of Archaeological Collections in New York State (1994), Cultural Resources Standards Handbook (2000), and NYSHPO Archaeological Report Format Requirements (2005), and

3. All investigations carried out in New Jersey will be undertaken in accordance with the New Jersey Historic Preservation Office Requirements for Archaeological Survey Reports – Standards for Report Sufficiency (N.J.A.C. 7:4-8.5).

B. Reporting

1. The New York District shall prepare annual reports summarizing the status of compliance with the terms of this PA and a summary of the completed activities and the exempt activities for the past year and proposed activities for the next fiscal year. Reports shall be submitted by January 31 of every year. The annual reports shall be provided to the Signatories, Invited Signatories, and Consulting Parties of this agreement, appropriate federally-recognized tribes, and additional interested parties, if identified, until the study-related activities are complete.

2. The Signatories may request a site visit to follow up on information in the annual report or to monitor activities carried out pursuant to this PA. The Signatories shall provide the New York District with 30 calendar days written notice when requesting a site visit unless otherwise agreed. The New York District may also schedule a site visit with the Signatories at its discretion.

3. The New York District shall certify in writing that all requirements for identification and evaluation, and the implementation of treatment/mitigation plans have been satisfactorily completed prior to the initiation of construction activities for a specified portion of the navigation improvements recommended in the Study. The New York District shall submit a copy of this certification to the SHPOs. The SHPOs shall have 30 days to object to the certification based on the SHPO's finding of incomplete compliance or inadequate compliance with the terms of this PA. If the SHPO does not object, the District may proceed with construction for the specified segment of the Study.

C. Review Periods

1. The New York District shall ensure that all draft and final reports and treatment plans resulting from the actions pursuant to this PA will be provided to the appropriate Signatories and other interested parties, if identified.

2. The Signatories and other interested parties shall receive copies of all determinations, evaluations, plans, reports and other documentation by email (via CRIS for the NY SHPO, and via paper mail for the NJ SHPO) for a 30 calendar day review period from the date of receipt unless otherwise stipulated in this PA.

a. The New York District shall ensure that all submissions to the Signatories and interested parties include all relevant information to facilitate their review. The New York District shall provide all additional information requested by Signatories or interested parties within a timely manner unless the Signatories to this PA agree otherwise.

3. Any comments and/or objections resulting from a review of any New York District determinations, evaluations, plans, reports, and other documents must be provided in writing to the New York District. If comments, objections, etc. are not received within 30 calendar days of the receipt, the New York District will assume concurrence with the subject determinations, evaluation, plan, report or other documentation submitted.

VIII. DISPUTE RESOLUTION

A. Should any Signatory, Invited Signatory or Concurring Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, the New York District shall consult with such party to resolve the objection. If the New York District determines that such objection cannot be resolved, the New York District will:

1. Forward all documentation relevant to the dispute, including the New York District's proposed resolution, to the ACHP. The ACHP shall provide the New York District with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the New York District shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, Signatories and Concurring Parties, and provide them with a copy of this written response. The New York District will then proceed according to its final decision.

2. If the ACHP does not provide its advice regarding the dispute within the 30-day time period, the New York District may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the New York District shall prepare a written response that takes into account any timely comments regarding the dispute from the Signatories and Concurring Parties to the PA and provide them and the ACHP with a copy of such written response.

3. The New York District's responsibilities to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

IX. TERMINATION

A. If any Signatory to this PA determines that its terms will not or cannot be carried out, that party shall immediately consult the other Signatories to attempt to develop an amendment per Stipulation X (Amendments). If within 30 calendar days an amendment cannot be reached, any Signatory may terminate the PA upon written notification of the other Signatories, with the obligations accruing up to the date of termination remaining in full force and effect.

B. Once the PA is terminated, and prior to work continuing on the Undertaking, the New York District must either (a) execute a PA pursuant to 36 CFR § 800.6 or (b) request, take into

account, and respond to the comments of the ACHP under CFR § 800.7. The New York District shall notify the Signatories as to the course of action it will pursue.

C. Execution of this PA by the New York District and the SHPOs and implementation of its terms evidence that the New York District has considered the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

X. AMENDMENTS

A. This PA may be amended upon agreement in writing by all Signatories. Within 30 calendar days of a written request to the New York District, the New York District will facilitate consultation between the Signatories regarding the proposed amendment.

B. Any amendments will be in writing and will be in effect on the date they are signed by all the Signatories.

XI. DURATION AND SUNSET CLAUSE.

A. This PA will take effect on the date the last Signatory signs this agreement.

B. This PA will continue in full force and effect until September 30, 2031, unless the Undertaking is terminated or authorization is rescinded, at which time the agreement may be extended as written provided all Signatories concur.

XII. ANTI-DEFICIENCY ACT

A. All requirements set forth in this PA requiring expenditure of funds by the New York District are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. 1341). No obligation undertaken by the New York District under the terms of this PA shall require or be interpreted to require a commitment to expend funds not appropriated for a particular purpose. If the New York District cannot perform any obligation set forth in this PA because of unavailability of funds, that obligation must be renegotiated among the New York District and the Signatories as necessary.

REFERENCES

Schuldenrein, Joseph; Curtis E. Larsen; Michael Aiuvaslasit; and Mark A. Smith
2014 Geomorphology/Archaeological Borings and GIS Model of the Submerged
Paleoenvironment in the New York and New Jersey Harbor and Bight In Connection with
the New York and New Jersey Harbor Navigation Project, Port of New York and New
Jersey. Prepared for Tetra Tech. Under Contract to U.S. Army Corps of Engineers, New
York District. Under subcontract to Hunter Research Inc. Contract No. DACW 51-01-D-
0018-4.

APPENDICES

Appendix A: Project APE and Submerged Native American Site Sensitivity Model


Appendix B: List of all parties contacted to identify interested parties

Appendix C: Tables of Cultural Resources within the APE

Appendix D: Correspondence

PROGRAMMATIC AGREEMENT
AMONG
THE U. S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICER
AND
THE NEW YORK STATE HISTORIC PRESERVATION OFFICER
REGARDING
NEW YORK AND NEW JERSEY HARBOR DEEPENING CHANNEL IMPROVEMENTS
STUDY
ESSEX, HUDSON, MONMOUTH AND UNION COUNTIES, NEW JERSEY
KINGS, QUEENS AND RICHMOND COUNTIES, NEW YORK

Execution of this PA by the New York District, NYSHPO, and NJSHPO and implementation of its terms evidence that the New York District has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

By:  Date: **OCT 07 2021**
Signatory
Matthew W. Luzzatto
Colonel, U.S. Army
New York District
Army Corps of Engineers

PROGRAMMATIC AGREEMENT
AMONG
THE U. S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICER
AND
THE NEW YORK STATE HISTORIC PRESERVATION OFFICER
REGARDING
NEW YORK AND NEW JERSEY HARBOR DEEPENING CHANNEL IMPROVEMENTS
STUDY
ESSEX, HUDSON, MONMOUTH AND UNION COUNTIES, NEW JERSEY
KINGS, QUEENS AND RICHMOND COUNTIES, NEW YORK

Execution of this PA by the New York District, NYSHPO, and NJSHPO and implementation of its terms evidence that the New York District has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

By: R. Daniel Mackay Date: 11/14/2011
Signatory
R. Daniel Mackay
Deputy Commissioner for Historic Preservation/Deputy SHPO
New York State Historic Preservation Office

PROGRAMMATIC AGREEMENT
AMONG
THE U. S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICER
AND
THE NEW YORK STATE HISTORIC PRESERVATION OFFICER
REGARDING
NEW YORK AND NEW JERSEY HARBOR DEEPENING CHANNEL IMPROVEMENTS
STUDY
ESSEX, HUDSON, MONMOUTH AND UNION COUNTIES, NEW JERSEY
KINGS, QUEENS AND RICHMOND COUNTIES, NEW YORK

Execution of this PA by the New York District, NYSHPO, and NJSHPO and implementation of its terms evidence that the New York District has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

By: Katherine J. Marcopul Date: 1/21/2022
Signatory
Katherine J. Marcopul
Deputy State Historic Preservation Officer
New Jersey State Historic Preservation Office

PROGRAMMATIC AGREEMENT
AMONG
THE U. S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT,
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICER
AND
THE NEW YORK STATE HISTORIC PRESERVATION OFFICER
REGARDING
NEW YORK AND NEW JERSEY HARBOR DEEPENING CHANNEL IMPROVEMENTS
STUDY
ESSEX, HUDSON, MONMOUTH AND UNION COUNTIES, NEW JERSEY
KINGS, QUEENS AND RICHMOND COUNTIES, NEW YORK

Execution of this PA by the New York District, NYSHPO, and NJSHPO and implementation of its terms evidence that the New York District has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment.

By: _____ Date: _____
Invited Signatory
Sarah Carroll
Chair
New York City Landmarks Preservation Commission

Appendix A. Map of APE and Probability Model for Submerged Native American Sites.

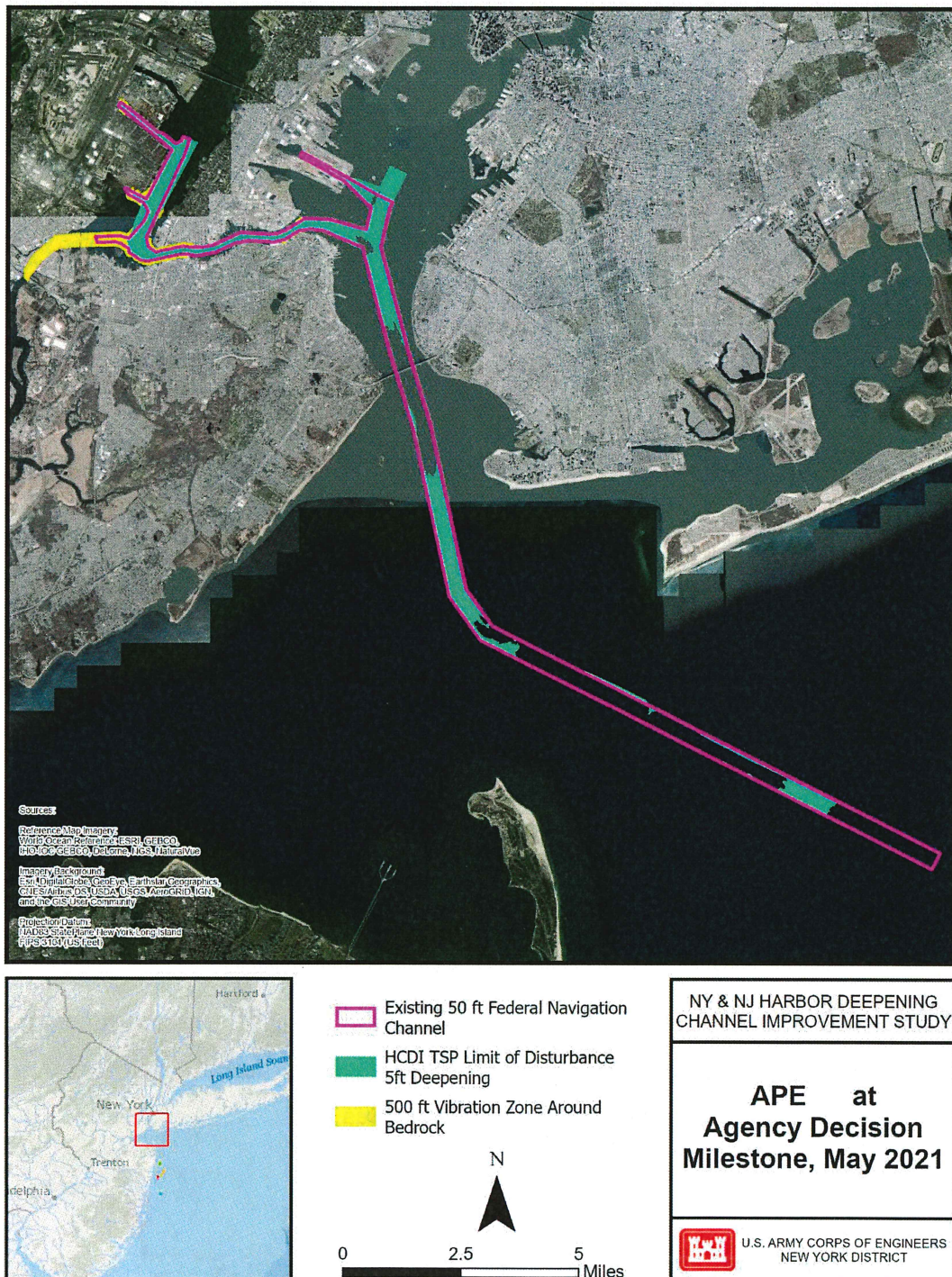


Figure 1. APE as understood at the time of the Agency Decision Milestone, May 2021.

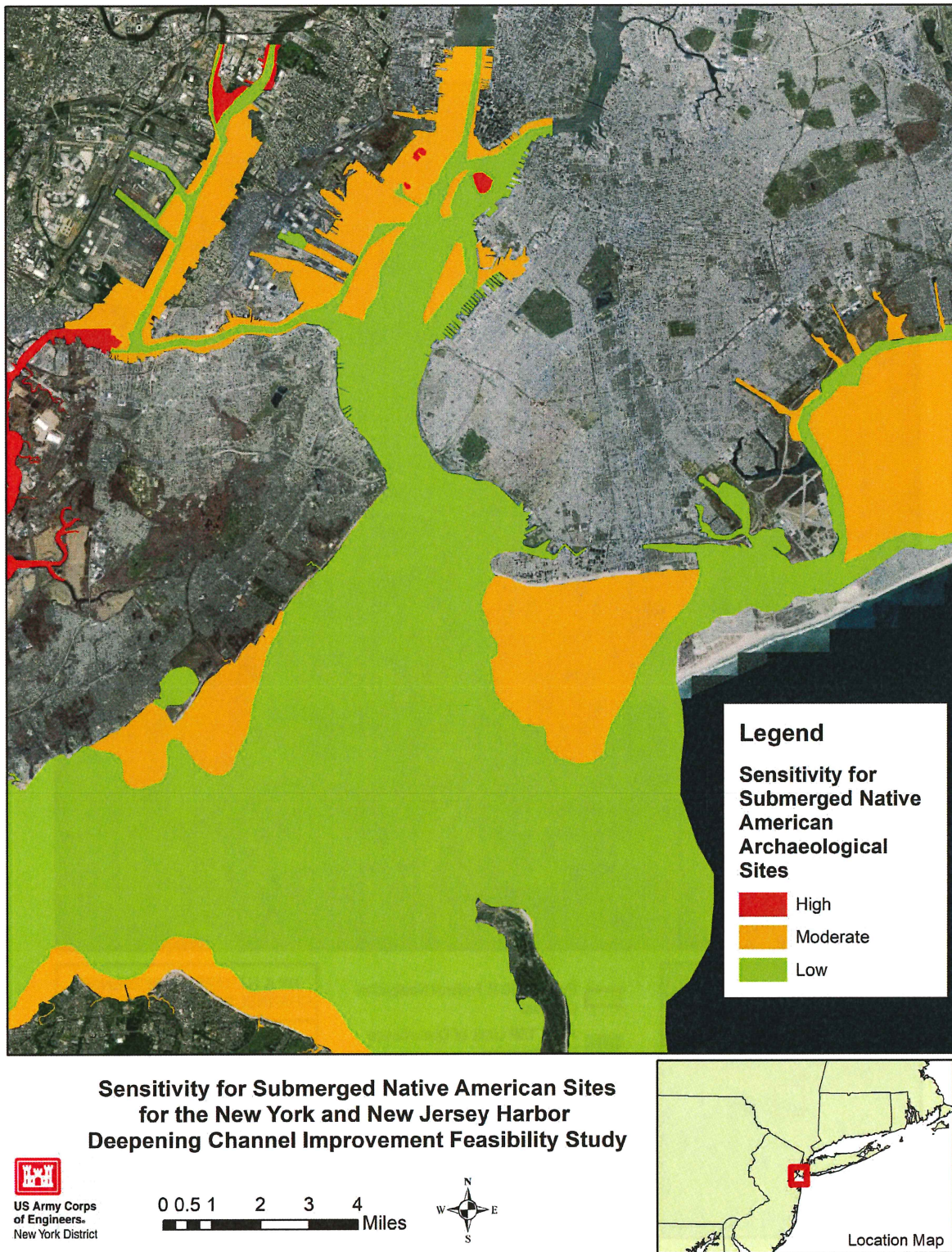


Figure 2. Sensitivity Model for Submerged Native American Sites.

Appendix B. List of All Parties Contacted to Identify Interested Parties.

Federal Agency

- 1) Advisory Council on Historic Preservation (ACHP)

State Agencies

- 1) New York State Historic Preservation Office (NYSHPO)
- 2) New Jersey State Historic Preservation Office (NJSHPO)

City Agencies

- 1) New York City Landmarks Preservation Commission (NYCLPC)

Tribes

- 1) Delaware Nation
- 2) Delaware Tribe of Indians
- 3) Shinnecock Indian Nation
- 4) Stockbridge Munsee Community
- 5) Shawnee Tribe
- 6) Unkechaug

Interested Parties

- 1) Archaeological Society of New Jersey
- 2) Bayonne Historical Society
- 3) Bronx County Historical Society
- 4) Brooklyn Historical Society
- 5) Historic Preservation Field Services Bureau (NYSOPRHP)
- 6) Hudson River Maritime Museum
- 7) Intrepid Sea, Air, Space Museum
- 8) Maritime Industry Museum
- 9) Middlesex County Cultural and Heritage Commission
- 10) Middletown Township Landmarks Commission
- 11) Monmouth County Historical Association
- 12) Monmouth County Parks System
- 13) Monmouth University – Department of History and Anthropology
- 14) New Jersey Historic Preservation Office – Division of Parks and Forestry
- 15) New Jersey Historical Society
- 16) New York Historical Society
- 17) New York State Archaeological Association – Metropolitan Chapter
- 18) New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)
- 19) Newark Landmarks and Historic Preservation Commission
- 20) Professional Archaeologists of New York City
- 21) Queens Historical Society
- 22) Snug Harbor Cultural Center
- 23) Society for Industrial Archaeology
- 24) South Street Seaport Museum
- 25) Staten Island Museum History Center and Archives

- 26) The Hudson Waterfront Museum
- 27) Waterfront Museum
- 28) Twin Lights Historical Society
- 29) Union County Office of Cultural and Historic Affairs

Appendix C: Tables of Cultural Resources within APE

Table 1. Cultural Resources within New Jersey Portion of APE.

Section of APE	Identification Number	Name	Description	NR Eligibility
Spans over APE	3821	Bayonne Bridge	Historic bridge	Eligible
Spans over APE	2666	Newark Bay Bridge	Historic bridge	Eligible
500-Foot Blasting Zone	3821	Bayonne Bridge	Historic bridge	Eligible (Indv.)
500-Foot Blasting Zone	2666	Newark Bay Bridge	Historic bridge	Eligible (Indv.)

Table 2. Cultural Resources within New York Portion of APE.

Section of APE	USN Number	Name	Description	NR Eligibility
Construction limits	08501.002828	<i>Paul E. Thurlow</i>	Historic shipwreck	Eligible
500-Foot Blasting Zone	08501.002827	Vessel fish hawk KVK 33	Historic shipwreck	Eligible
500-Foot Blasting Zone	08501.002703	V-45 WOOD DREDGE	Historic shipwreck	Eligible
500-Foot Blasting Zone	08501.002825	Balanced Floating Dry Dock KVK 38	Historic shipwreck	Eligible
500-Foot Blasting Zone	08501.002826	Suction Dredge KVK 36	Historic shipwreck	Eligible
Span over APE	4701.015468	Verrazano Narrows Bridge	Double deck, gravity-anchored suspension bridge	Eligible
500-Foot Blasting Zone	08501.002189	Faber Park	Historic Park	Eligible
500-Foot Blasting Zone	08501.002781	Bayonne Bridge (Route 440)	Historic bridge	Eligible

Table 3. LPC Designated Cultural Resources* in or near the APE.

Agency	Portion of Study	LPC Designated Property
LPC	Staten Island	Stephen D. Barnes House, 2876 Richmond Terrace
LPC	Staten Island	Standard Varnish Works Factory Office Building, 2589 Richmond Terrace
LPC	Staten Island	Reformed Church on Staten Island, Sunday school Building and Cemetery, 54 Port Richmond Avenue
LPC	Staten Island	John De Groot House, 1674 Richmond Terrace
LPC	Staten Island	Cornelius Crusier House, 1262 Richmond Terrace
LPC	Staten Island	69 Delafield Place House, 69 Delafield Place
LPC	Staten Island	Sailor's Snug Harbor, 914-1000 Richmond Terrace
LPC	Staten Island	Fence
LPC	Staten Island	Building A
LPC	Staten Island	Building B
LPC	Staten Island	Building C (including interior)
LPC	Staten Island	Building D
LPC	Staten Island	Building E
LPC	Staten Island	North Gate House, 982 Richmond Terrace
LPC	Staten Island	Tysen-Neville House, 806 Richmond Terrace (also S/NR listed)
LPC	Staten Island	St. George-New Brighton Historic District
LPC	Staten Island	Staten Island Family Courthouse, 100 Richmond Terrace (inbound from the shore)
LPC	Staten Island	120th Police Precinct Station House, 78 Richmond Terrace (inbound from the shore)
LPC	Staten Island	Richmond County Courthouse, 12-24 Richmond Terrace (inbound from the shore)
LPC	Staten Island	State Island Borough Hall, 2-10 Richmond Terrace (inbound from the shore)
LPC	Staten Island	United States Lighthouse Service, 34d District, State Island Deport Office Building, 1 Bay Street
LPC	Staten Island	Tompkinsville (Joseph H. Lyyons) Pool, Victory Boulevard at Murray Hulbert Avenue
LPC	Staten Island	Alice Austin House, 2 Hylan Boulevard
LPC	Staten Island	Henry McFarlane House, 30 Hylan Boulevard
LPC	Staten Island	Fort Richmond and Fort Tompkins in Fort Wadsworth
LPC	Staten Island	St. Peter's Church, 53 St. Mark's Place
LPC	Brooklyn	Fort Hamilton Casemate Fort, Whiting Quadrangle
LPC	Brooklyn	Bennet-Farrell-Feldman House, 119 95 th Street (inbound from the shore)
LPC	Brooklyn	Howard E. & Jessie Jones House, 8200 Narrows Avenue (inbound from the shore)

*For additional information regarding the NRHP Eligibility status of LCP cultural resources of concern, please see the Cultural Resources Appendix of the Integrated Feasibility Report and Environmental Assessment.