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Appendix A Relevant Laws and Regulations

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Regulatory Setting

The Navy has prepared this EA based on federal and state laws, statutes, regulations, policies, and Executive Orders pertinent to this Proposed Action, including but not limited to:

- NEPA, as amended (42 United States Code [U.S.C.] section 4321 et seq.), which requires an environmental analysis for major federal actions that have the potential to significantly affect the quality of the human environment
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] parts 1500–1508), as amended
- Navy regulations for implementing NEPA (32 CFR part 775), which provides the policy and responsibilities for implementing CEQ regulations and NEPA
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Coastal Zone Management Act (16 U.S.C. section 1451 et seq.)
- National Historic Preservation Act (54 U.S.C. section 306108 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. section 703–712)
- Bald and Golden Eagle Protection Act (16 U.S.C. sections 668–668d)
- Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. section 9601 et seq.)
- Emergency Planning and Community Right-to-Know Act (42 U.S.C. sections 11001–11050)
- Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. section 136 et seq.)
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Toxic Substances Control Act (15 U.S.C. sections 2601–2629)
- Executive Order (EO) 11988, *Floodplain Management*
- EO 11990, *Protection of Wetlands*
- EO 12088, *Federal Compliance with Pollution Control Standards*
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*
- EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*
- EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*
- EO 14096, *Revitalizing Our Nation’s Commitment to Environmental Justice for All*

The following describes the regulatory setting pursuant to relevant laws and regulations according to the resource areas analyzed in detail in Chapter 3 of this EA.

Air Quality

Criteria Pollutants and National Ambient Air Quality Standards

The principal pollutants defining air quality, called “criteria pollutants,” include carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone, suspended particulate matter less than or equal to 10 micrometers in diameter (PM₁₀), fine particulate matter less than or equal to 2.5 micrometers in diameter (PM_{2.5}), and lead (Pb). CO, SO₂, Pb, and some particulates are emitted directly into the atmosphere from emissions sources. Ozone, NO₂, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes.

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for these pollutants. NAAQS are classified as primary or secondary. Primary standards protect against adverse health effects; secondary standards protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. Some pollutants have long-term and short-term standards. Short-term standards are designed to protect against acute, or short-term, health effects, while long-term standards were established to protect against chronic health effects.

Areas that are, and have historically been, in compliance with the NAAQS are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment. NSF Indian Head is within a moderate non-attainment area for ozone NAAQS.

The CAA requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country and a specific plan to attain the standards for each area designated nonattainment for an NAAQS. These plans, known as State Implementation Plans (SIPs), are developed by state and local air quality management agencies and submitted to USEPA for approval.

In addition to the NAAQS for criteria pollutants, national standards exist for hazardous air pollutants (HAPs), which are regulated under Section 112(b) of the 1990 CAA Amendments. The *National Emission Standards for Hazardous Air Pollutants* regulate HAP emissions from stationary sources (40 CFR part 61).

Mobile Sources

HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause cancer or other serious health and environmental effects. In 2001, USEPA issued its first MSAT Rule, which identified 201 compounds as being HAPs that require regulation. A subset of six of the MSAT compounds was identified as having the greatest influence on health and included benzene, butadiene, formaldehyde, acrolein, acetaldehyde, and diesel particulate matter. More recently, USEPA issued a second MSAT Rule in February 2007, which generally supported the findings in the first rule and provided additional recommendations of compounds having the greatest effect on health. The rule also identified several engine emission certification standards that must be implemented (40 CFR parts 59, 80, 85, and 86; *Federal Register* Volume 72, No. 37, pp. 8427–8570, 2007). Unlike the criteria pollutants, there are no NAAQS for benzene and other HAPs. The primary control methodologies for these pollutants for mobile sources involve reducing their content in fuel and altering the engine operating characteristics to reduce the volume of pollutant generated during combustion.

General Conformity

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year [tpy]) vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question.

A conformity applicability analysis is the first step of a conformity evaluation and assesses if a federal action must be supported by a conformity determination. This is typically done by quantifying applicable direct and indirect emissions that are projected to result due to implementation of the federal action. Indirect emissions are those emissions caused by the federal action and originating in the region of interest, but which can occur at a later time or in a different location from the action itself and are reasonably foreseeable. The federal agency can control and will maintain control over the indirect action due to a continuing program responsibility of the federal agency. Reasonably foreseeable emissions are projected future direct and indirect emissions that are identified at the time the conformity evaluation is performed. The location of such emissions is known, and the emissions are quantifiable, as described and documented by the federal agency based on its own information and after reviewing any information presented to the federal agency. If the results of the applicability analysis indicate that the total emissions would not exceed the *de minimis* emissions thresholds, then the conformity evaluation process is completed. *De minimis* threshold emissions are presented in Table A-1.

Permitting: New Source Review (Preconstruction Permit)

New major stationary sources and major modifications at existing major stationary sources are required by the CAA to obtain an air pollution permit before commencing construction. This permitting process for major stationary sources is called New Source Review and is required whether the major source or major modification is planned for nonattainment areas or attainment and unclassifiable areas. In general, permits for sources in attainment areas and for other pollutants regulated under the major source program are referred to as Prevention of Significant Deterioration (PSD) permits, while permits for major sources emitting nonattainment pollutants and located in nonattainment areas are referred to as nonattainment new source review permits. In addition, a proposed project may have to meet the requirements of nonattainment new source review for the pollutants for which the area is designated as nonattainment and PSD for the pollutants for which the area is attainment. Additional PSD permitting thresholds apply to increases in stationary source greenhouse gas (GHG) emissions. PSD permitting can also apply to a new major stationary source (or any net emissions increase associated with a modification to an existing major stationary source) that is constructed within 6.2 miles of a Class I area, and which would increase the 24-hour average concentration of any regulated pollutant in the Class I area by 1 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) or more. Navy installations shall comply with applicable permit requirements under the PSD program per 40 CFR section 51.166.

Table A-1 General Conformity *de minimis* levels

Pollutant	Area Type	tpy
Ozone (VOC or NO _x)	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NO _x)	Marginal and moderate nonattainment within an ozone transport region	100
	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment within an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
Carbon monoxide, sulfur dioxide, and nitrogen dioxide	All nonattainment and maintenance	100
PM ₁₀	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
PM _{2.5} Direct emissions of PM _{2.5} , sulfur dioxide, NO _x (unless determined not to be a significant precursor), VOC or ammonia (if determined to be significant precursors)	All nonattainment and maintenance	100
Lead	All nonattainment and maintenance	25

Key: tpy = tons per year; VOC = volatile organic compound; NO_x = nitrogen oxides; CO = carbon monoxide; SO₂ = sulfur dioxide; NO₂ = nitrogen dioxide; PM₁₀ = suspended particulate matter less than or equal to 10 micrometers in diameter; PM_{2.5} = fine particulate matter less than or equal to 2.5 micrometers on diameter.

1 Permitting: Title V (Operating Permit)

2 The Title V Operating Permit Program consolidates all CAA requirements applicable to the operation of a
3 source, including requirements from the SIP, preconstruction permits, and the air toxics program. It
4 applies to stationary sources of air pollution that exceed the major stationary source emission
5 thresholds, as well as other non-major sources specified in a particular regulation. The program includes
6 a requirement for payment of permit fees to finance the operating permit program whether
7 implemented by USEPA or a state or local regulator. Navy installations subject to Title V permitting shall
8 comply with the requirements of the Title V Operating Permit Program, which are detailed in 40 CFR
9 Part 70 and all specific requirements contained in their individual permits. NSF Indian Head operates
10 under Title V/Part 70 permit number 24-017-0040 issued on December 13, 2022, and expiring April 30,
11 2027. The permit sets limits for new source review permitting and GHG emissions reporting.

12 Greenhouse Gases

13 GHGs are gas emissions that trap heat in the atmosphere. These emissions occur from natural processes
14 and human activities. Scientific evidence indicates a trend of increasing global temperature over the
15 past century due in part to an increase in GHG emissions from human activities. The climate change
16 associated with this global warming is predicted to produce negative economic and social consequences
17 across the globe. CEQ's most recent draft guidance on the consideration of GHGs states that a
18 projection of a proposed action's direct and reasonably foreseeable indirect GHG emissions may be used

as a proxy for assessing potential climate effects (*Federal Register* Vol 84, No 123, June 26, 2019, pp 30097–30099). GHG emissions are standardized to carbon dioxide, which has a value of one. The carbon dioxide equivalent (CO₂e) rate is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emissions rate representing all GHGs. NSF Indian Head is subject to the GHG reporting requirements as stated in the Title V/Part 70 operating permit.

Water Resources

The Safe Drinking Water Act is the federal law that protects public drinking water supplies throughout the nation. Under the Safe Drinking Water Act, The USEPA sets standards for drinking water quality. Groundwater quality and quantity are regulated under several statutes and regulations, including the Safe Drinking Water Act.

The CWA establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the point of discharge (i.e., end of pipe) and nonpoint sources (i.e., stormwater) of water pollution.

The Maryland NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more to obtain coverage under a NPDES Construction General Permit for stormwater discharges. Construction or demolition that necessitates an individual permit also requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan that is implemented during construction. As part of the 2014 Final Rule for the CWA, titled *Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category*, activities covered by this permit must implement non-numeric erosion and sediment controls and pollution prevention measures.

Wetlands are currently regulated by the USACE under Section 404 of the CWA as a subset of all “Waters of the United States.” Waters of the United States are defined as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly about such tributaries under Section 404 of the CWA, as amended, and are regulated by USEPA and the USACE. The CWA requires that Maryland establish a Section 303(d) list to identify impaired waters and establish Total Maximum Daily Loads for the sources causing the impairment.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into wetlands and other Waters of the United States. Any discharge of dredge or fill into Waters of the United States requires a permit from the USACE.

Section 438 of the Energy Independence and Security Act establishes stormwater design requirements for development and redevelopment projects. Under these requirements, federal facility projects larger than 5,000 square feet must “maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.”

Section 10 of the Rivers and Harbors Act provides for USACE permit requirements for any in-water construction. USACE and some states require a permit for any in-water construction. Permits are

required for construction of piers, wharfs, bulkheads, pilings, marinas, docks, ramps, floats, moorings, and like structures; construction of wires and cables over the water, and pipes, cables, or tunnels under the water; dredging and excavation; any obstruction or alteration of navigable waters; depositing fill and dredged material; filling of wetlands adjacent or contiguous to waters of the U.S.; construction of riprap, revetments, groins, breakwaters, and levees; and transportation of dredged material for dumping into ocean waters.

The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Wild and Scenic Rivers Act of 1968 is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

The Coastal Zone Management Act of 1972 (CZMA) provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. Actions occurring within the coastal zone commonly have several resource areas that may be relevant to the CZMA.

Executive Order 11990, *Protection of Wetlands*, requires that federal agencies adopt a policy to avoid, to the extent possible, long- and short-term adverse effects associated with destruction and modification of wetlands and to avoid the direct and indirect support of new construction in wetlands whenever there is a practicable alternative.

Executive Order 11988, *Floodplain Management*, requires federal agencies to avoid to the extent possible the long- and short-term adverse effects associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative. Flood potential of a site is usually determined by the 100-year floodplain, which is defined as the area that has a one percent chance of inundation by a flood event in a given year.

Geological Resources

Consideration of geologic resources extends to prime or unique farmlands. The Farmland Protection Policy Act (FPPA) was enacted in 1981 in order to minimize the loss of prime farmland and unique farmlands as a result of federal actions. The implementing procedures of the FPPA require federal agencies to evaluate the adverse effects of their activities on farmland, which includes prime and unique farmland and farmland of statewide and local importance, and to consider alternative actions that could avoid adverse effects.

Cultural Resources

Cultural resources are governed by other federal laws and regulations, including the National Historic Preservation Act (NHPA), Archeological and Historic Preservation Act (AHPA), American Indian Religious Freedom Act (AIRFA), Archaeological Resources Protection Act of 1979 (ARPA), and the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA). Federal agencies' responsibilities for protecting historic properties are defined primarily by Sections 106 and 110 of the NHPA. Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties. Section 110 of the NHPA requires federal agencies to establish—in conjunction with the Secretary of the Interior—historic preservation programs for the identification, evaluation, and protection of historic properties. Cultural resources also may be covered by state, local, and territorial laws.

Biological Resources

Special-status species, for the purposes of this assessment, are those species listed as threatened or endangered under the Endangered Species Act and species afforded federal protection under the Marine Mammal Protection Act or the Migratory Bird Treaty Act.

The purpose of the Endangered Species Act is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7 of the Endangered Species Act requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration National Marine Fisheries Service to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the Department of Defense (DOD) where an Integrated Natural Resources Management Plan has been developed that, as determined by the Department of the Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

The Nongame and Endangered Species Conservation Act (Annotated Code of Maryland 10-2A-01) is the primary Maryland law (enacted in 1975) that governs the legal listing of threatened and endangered species in Maryland. This Act is supported by regulations (Code of Maryland Regulations, COMAR 08.03.08) that define listing criteria for endangered, threatened, in need of conservation, and endangered extirpated species; lists the species included in each category; establishes the purpose and intent of research and collection permits; and lists prohibited activities.

All marine mammals are protected under the provisions of the Marine Mammal Protection Act. This act prohibits any person or vessel from “taking” marine mammals in the United States or the high seas without authorization. The Marine Mammal Protection Act defines “take” to mean “to harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill any marine mammal.”

Birds, including migratory and most native-resident bird species, are protected under the Migratory Bird Treaty Act, and their conservation by federal agencies is mandated by EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. Under the Migratory Bird Treaty Act, it is unlawful by any means or in any manner to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. EO 13186 directs executive departments and agencies to take certain actions to further implement the MBTA. Under EO 13186, federal agencies are required to define what actions and programs should be included in an agency-specific Memorandum of Understanding (MOU) with the USFWS (U.S. Government, 2001). In July 2006, a MOU between the DOD and the USFWS was established, which outlines a collaborative approach to promote the conservation of migratory birds. This MOU identifies specific activities (excluding military readiness activities) that the DOD should take to advance the conservation of migratory birds and to avoid or minimize the take of migratory birds. This MOU also directs the DOD to ensure that their operations are consistent with the MBTA; however, it does not authorize the take of migratory birds (U.S. Navy, 2020; DOD Environment, Safety, & Occupational Health Network and Information Exchange (DENIX) , 2006).

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS to identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973. The Birds of

1 Conservation Concern 2021, Migratory Bird Program, is the most recent effort to carry out this mandate
2 (USFWS, 2021).

3 Bald and golden eagles are protected by the Bald and Golden Eagle Protection Act. This act prohibits
4 anyone, without a permit issued by the Secretary of the Interior, from taking these eagles, including
5 their parts, nests, or eggs. The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill,
6 capture, trap, collect, molest or disturb.”

7 The Magnuson-Stevens Fishery Conservation and Management Act provides for the conservation and
8 management of fisheries. Under the Act, essential fish habitat (EFH) consists of the waters and substrate
9 needed by fish to spawn, breed, feed, or grow to maturity.

10 Land Use

11 In many cases, land use descriptions are codified in installation master planning and local zoning laws.
12 OPNAVINST 11010.40 establishes an encroachment management program to ensure operational
13 sustainment that has direct bearing on land use planning on installations. Additionally, the joint
14 instruction OPNAVINST 11010.36C and Marine Corps Order 11010.16 provides guidance administering
15 the Air Installation Compatible Use Zone (AICUZ) program, which recommends land uses that are
16 compatible with noise levels, accident potential, and obstruction clearance criteria for military airfield
17 operations. OPNAVINST 3550.1A and Marine Corps Order 3550.11 provide guidance for a similar
18 program, Range AICUZ (RAICUZ). This program includes range safety and noise analyses, and provides
19 land use recommendations which will be compatible with Range Compatibility Zones and noise levels
20 associated with military range operations.

21 Through the Coastal Zone Management Act of 1972 (CZMA), Congress established national policy to
22 preserve, protect, develop, restore, or enhance resources in the coastal zone. This Act encourages
23 coastal states to properly manage use of their coasts and coastal resources, prepare and implement
24 coastal management programs, and provide for public and governmental participation in decisions
25 affecting the coastal zone. To this end, CZMA imparts an obligation upon federal agencies whose actions
26 or activities affect any land or water use or natural resource of the coastal zone to be carried out in a
27 manner consistent to the maximum extent practicable with the enforceable policies of federally
28 approved state coastal management programs. However, Federal lands, which are “lands the use of
29 which is by law subject solely to the discretion of the Federal Government, its officers, or agents,” are
30 statutorily excluded from the State’s “coastal uses or resources.” If, however, the proposed federal
31 activity affects coastal uses or resources beyond the boundaries of the federal property (i.e., has
32 spillover effects), the CZMA Section 307 federal consistency requirement applies. As a federal agency,
33 the Navy is required to determine whether its proposed activities would affect the coastal zone. This
34 takes the form of a consistency determination, a negative determination, or a determination that no
35 further action is necessary.

36 In October 2003, DOD issued Instruction number 2000.16, “DOD Antiterrorism Standards,” requiring all
37 DOD Components to adopt and adhere to common criteria and minimum construction standards to
38 mitigate antiterrorism vulnerabilities and terrorist threats. The intent of these building standards is to
39 integrate greater resistance to a terrorist attack into all inhabited buildings. That philosophy affects the
40 general practice of designing inhabited buildings. Because a part of the redevelopment project would be
41 occupied by Navy personnel, the applicability of Anti-Terrorist Force Protection (ATFP) requirements is
42 evaluated in Section 3.6, Land Use, of this EA. ATFP standards consist of restrictions for on-site planning,
43 including standoff distances, building separation, unobstructed space, drive-up and drop-off areas,

access roads, and parking; structural design; structural isolation; and electrical and mechanical design. ATFP standards would be incorporated into the design, where applicable.

The Farmland Protection Policy Act (FPPA) is intended to minimize the effect Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Noise

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although continuous and extended exposure to high noise levels (e.g., through occupational exposure) can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise; perceived importance of the noise; its appropriateness in the setting, time of day, and type of activity during which the noise occurs; and sensitivity of the individual.

Noise Effects

An extensive amount of research has been conducted regarding noise effects including annoyance, speech interference, sleep disturbance, noise-induced hearing impairment, nonauditory health effects, performance effects, noise effects on children, effects on domestic animals and wildlife, property values, structures, terrain, and archaeological sites.

Potential Hearing Loss

People living in high-noise environments for an extended period (40 years) can be at risk for hearing loss called noise-induced permanent threshold shift. Noise-induced permanent threshold shift defines a permanent change in hearing level, or threshold, caused by exposure to noise (USEPA, 1982). According to USEPA (1974), changes in hearing level of less than 5 dB are generally not considered noticeable. There is no known evidence that a noise-induced permanent threshold shift of less than 5 dB is perceptible or has any practical significance for the individual affected. Furthermore, the variability in audiometric testing is generally assumed to be plus or minus 5 dB. The preponderance of available information on hearing loss risk is from the workplace with continuous exposure throughout the day for many years.

Based on a report by Ludlow and Sixsmith (1999), there were no major differences in audiometric test results between military personnel who, as children, had lived in or near installations where fast jet operations were based, and a similar group who had no such exposure as children. Hence, for the purposes of this EA, the limited data are considered applicable to the general population, including children, and are used to provide a conservative estimate of the risk of potential hearing loss.

Speech Interference

Speech interference can cause disruption of routine activities, such as enjoyment of radio or television programs, telephone use, or family conversation, giving rise to frustration or irritation. In extreme cases, speech interference can cause fatigue and vocal strain to individuals who try to communicate over the noise.

Classroom Criteria and Noise Effects on Children

Research suggests that environments with sustained high background noise can have variable effects, including effects on learning and cognitive abilities and various noise-related physiological changes. Research on the effects of noise in general on the cognitive abilities of school-aged children has received more attention in recent years.

Workplace Noise

In 1972, the National Institute for Occupational Safety and Health (NIOSH) published a criteria document with a recommended exposure limit of 85 dBA as an eight-hour time-weighted average. This exposure limit was reevaluated in 1998 when NIOSH made recommendations that went beyond conserving hearing by focusing on the prevention of occupational hearing loss. Following the reevaluation using a new risk assessment technique, NIOSH published another criteria document in 1998, which reaffirmed the 85-dB recommended exposure limit (NIOSH, 1998).

Regulatory Setting

Under the Noise Control Act of 1972, the Occupational Safety and Health Administration established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over eight hours. The highest allowable sound level to which workers can be constantly exposed is 115 dBA and exposure to this level must not exceed 15 minutes within an eight-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment to reduce sound levels to acceptable limits.

The joint instruction OPNAVINST 11010.36C and Marine Corps Order 11010.16, *Air Installations Compatible Use Zones (AICUZ) Program*, provides guidance administering the AICUZ program which recommends land uses that are compatible with aircraft noise levels. OPNAVINST 3550.1A and Marine Corps Order 3550.11 provide guidance for a similar program, RAICUZ. This program includes range safety and noise analyses, and provides land use recommendations which will be compatible with Range Compatibility Zones and noise levels associated with military range operations. Per OPNAVINST 11010.36C, NOISEMAP is to be used for developing noise contours and is the best noise modeling science available today for fixed-wing aircraft until the new Advanced Acoustic Model is approved for use.

Infrastructure

Executive Order 13834, *Efficient Federal Operations*, requires federal departments and agencies to meet statutory requirements related to energy and environmental performance in a manner that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment. Agencies are directed to ensure that new construction conforms to applicable energy efficiency requirements and sustainable design principles, to implement space utilization and optimization practices, and to annually assess and report on building conformance to sustainability metrics.

Chief of Naval Operation Instruction 4100.5E outlines the Secretary of the Navy's vision for shore energy management. The focus of this instruction is establishing the energy goals and implementing strategy to achieve energy efficiency.

DOD Instruction 2000.12 governs DOD's antiterrorism program generally. DODI O-2000.16, Volumes 1 and 2 provide the minimum construction standards to mitigate antiterrorism vulnerabilities and terrorist threats.

Public Health and Safety

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires federal agencies to "make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

Hazardous Materials and Wastes

Hazardous materials are defined by 49 CFR section 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR part 173." Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR part 273. Four types of waste are currently covered under the universal wastes regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps, such as fluorescent light bulbs.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include asbestos-containing material (ACM), polychlorinated biphenyls (PCBs), and lead-based paint (LBP). USEPA is given authority to regulate special hazard substances by the Toxic Substances Control Act (TSCA). Asbestos is also regulated by USEPA under the Clean Air Act, and the Comprehensive Environmental Response, Compensation, and Liability Act.

The DOD established the Defense Environmental Restoration Program (DERP) to facilitate thorough investigation and cleanup of contaminated sites on military installations (active installations, installations subject to Base Realignment and Closure, and formerly used defense sites). The Installation Restoration Program and the Military Munitions Response Program are components of the DERP. The Installation Restoration Program requires each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The Military Munitions Response Program addresses nonoperational rangelands that are suspected or known to contain unexploded ordnance, discarded military munitions, or munitions constituent contamination. The Environmental Restoration Program is the Navy's initiative to address DERP.

1 **Environmental Justice**

2 Consistent with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
3 *Low-Income Populations* (February 11, 1994), and EO 14096, *Revitalizing Our Nation's Commitment to*
4 *Environmental Justice for All* (April 26, 2023), the Navy's policy is to identify and address any
5 disproportionately high and adverse human health or environmental effects of its actions on minority
6 and low-income populations.

7

Consistency of this Proposed Action with Federal, State, and Local Laws, Plans, Policies, and Regulation

In accordance with 40 CFR section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. Table A-2 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action and describes briefly how compliance with these laws and regulations would be accomplished.

Table A-2 Principal Federal and State Laws Applicable to the Proposed Action

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
NEPA; CEQ NEPA-implementing regulations; Navy procedures for implementing NEPA	This Environmental Assessment has been prepared in accordance with NEPA, as implemented by the CEQ and Navy regulations.
Clean Air Act	The Proposed Action would comply with applicable federal and state air quality regulations. The project area is designated as a moderate nonattainment area with the 2015 8-hour ozone NAAQS and in maintenance for the 2008 Ozone NAAQS. Estimated emissions would not exceed applicable <i>de minimis</i> thresholds. A general conformity applicability analysis and Record of Non-Applicability are in Appendix C.
Clean Water Act	No surface waters or wetlands exist at Alternative 1, based on an NSF staff field investigation and the NWI map. Alternative 2 may affect a small portion of a stream/ditch through vegetation removal. The proposed paved road and sanitary sewer line may extend beyond the existing gravel road footprint and affect an existing 25-foot wetland buffer. Consultation with and verification of wetland/stream boundaries from the USACE and MDE would occur prior to construction to ensure compliance with Section 401/404 of the Clean Water Act. If required, Section 401/404 permitting would be obtained and any subsequent mitigation would be implemented.
Rivers and Harbors Act	Not applicable.
Coastal Zone Management Act	In accordance with Section 307 of the Coastal Zone Management Act, the Navy will submit a Federal Consistency Determination to MDE. The determination shows that the Navy finds the activities conducted under both Alternative 1 and Alternative 2 are consistent to the maximum extent practicable with the enforceable policies of Maryland's Coastal Zone Management Program as they relate to federal actions. The Navy's determination submittal and the MDE response will be included in Appendix B.

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
National Historic Preservation Act	Alternative 1 would have no effect on known archaeological resources, but the site has not been previously disturbed. There would be no direct effect on NRHP-eligible resources within the Alternative 1 APE. There is potential to encounter unanticipated archaeological resources due to utility placement within an NRHP-eligible site under Alternative 2. No aboveground historic properties are within the Alternative 2 APE, and no effect on historic architectural resources would be expected. The Navy will coordinate with the Maryland SHPO under Section 106.
Endangered Species Act	No adverse effect on threatened or endangered species would be anticipated; however, consultation with the USFWS and MDNR is ongoing. In accordance with recommended time-of-year restrictions, the Navy would not conduct tree clearing activities and exterior construction from April 1–September 30 to avoid effects on tricolored bat or northern long-eared bat.
Nongame and Endangered Species Conservation Act (Annotated Code of Maryland 10-2A-01)	No adverse effect on state threatened or endangered species would be anticipated; however, consultation with the MDNR is ongoing.
Magnuson-Stevens Fishery Conservation and Management Act	Not applicable. No in-water work would occur under the Proposed Action.
Marine Mammal Protection Act	Not applicable. No in-water work would occur under the Proposed Action, and no marine mammals occur at NSF Indian Head.
Migratory Bird Treaty Act	The Navy would not conduct tree clearing from April 1–September 30 which would avoid effects during the active breeding season for birds. Alternative 1 is within an active bald eagle nest Protection Zone 1, but this nest would not be removed. See below under the Bald and Golden Eagle Protection Act for more information. Alternative 2 is within a great blue heron rookery buffer zone. During construction, this rookery may be affected from construction noise. No human disturbance to the great blue heron colony, eggs, or chicks would occur. All human entry into the Protection Zone 1 would be avoided during the great blue heron breeding season from February 15–July 31. Operational noise from Alternative 2 could adversely affect nesting great blue herons; however, these effects would likely be less than significant.

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
Bald and Golden Eagle Protection Act	The Alternative 1 study area is within an active bald eagle nest Protection Zone 1 and within Priority Zone 2 for mitigating adverse bald eagle effects. Alternative 1 would not result in the direct removal of this bald eagle nest. All practicable efforts would be made for construction and operational noise to occur outside of the bald eagle nesting season (December 15–June 15). If construction or operational noise must occur within the bald eagle nesting season, USFWS consultation would occur and/or the one nest take per calendar year authorized in the BGEPA permit would be considered. Permanent changes to the landscape may occur within the Protection Zone 1 of the bald eagle nest because of Alternative 1. No effects on eagles would be expected under Alternative 2. Consultation with the USFWS is ongoing.
Comprehensive Environmental Response, Compensation, and Liability Act	The Navy is subject to the regulations established by the CERCLA. Applicable sites within the alternative study areas are currently being addressed under varied schedules for addressing contaminated sites under CERCLA or have been designated as No Further Action.
Emergency Planning and Community Right-to-Know Act	Not applicable. Chemical substances would remain the same; reporting requirements would continue.
Federal Insecticide, Fungicide, and Rodenticide Act	Not applicable. The Navy would continue to use any pesticides or pesticide-treated products in accordance with applicable labeling.
Resource Conservation and Recovery Act	No changes would occur in the way that hazardous wastes are handled, stored, or disposed of.
Toxic Substances Control Act	Chemical substances would remain the same; reporting requirements would continue.
Farmland Protection Policy Act	The project area is on a military installation and not considered available for use as farmland; no effects would occur.
EO 11988, <i>Floodplain Management</i>	Alternative 1 is not within a floodplain. The proposed development under Alternative 2 is mostly within the 100-year floodplain. Flood risks would be mitigated by constructing the UTT facility and any flood-susceptible utilities at a minimum of three feet above the 100-year flood level, or a waiver would be sought to comply with EO 11988.
COMAR 26.17.04.08, <i>Temporary Construction in a Stream Channel or Floodplain</i>	Alternative 1 is not within a floodplain. Alternative 2 is mostly within the 100-year floodplain; thus, compliance with COMAR 26.17.04.08 would be followed.
EO 11990, <i>Protection of Wetlands</i>	No direct effects on wetlands would occur under the Proposed Action. No wetlands exist at Alternative 1, based on a NSF staff field investigation and the NWI map. However, Alternative 2 may affect an existing 25-foot wetland buffer. Consultation with USACE/MDE is ongoing.
EO 12088, <i>Federal Compliance with Pollution Control Standards</i>	The Proposed Action would comply with applicable pollution controls required by construction permits.

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
EO 12898, <i>Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations</i> EO 14096, <i>Revitalizing Our Nation's Commitment to Environmental Justice for All</i>	No disproportionately high or adverse effects on minority or low-income populations would occur.
EO 13045, <i>Protection of Children from Environmental Health Risks and Safety Risks</i>	No disproportionate effects on children would occur.
EO 13175, <i>Consultation and Coordination with Indian Tribal Governments</i>	No traditional cultural properties are known to be located within or near the project location. The Navy will coordinate with Tribes under Section 106.
EO 13834, <i>Efficient Federal Operations</i>	The Proposed Action does not include changes in operations.

Key: CEQ=Council on Environmental Quality; EO = Executive Order; NEPA=National Environmental Policy Act; NSF = Naval Support Facility; SHPO=State Historic Preservation Office; USACE=U.S. Army Corps of Engineers.

Appendix A References

- DOD Environment, Safety, & Occupational Health Network and Information Exchange (DENIX). (2006). *MOU between the U.S. DOD and the U.S. FWS to Promote the Conservation of Migratory Birds*. Retrieved from https://www.denix.osd.mil/dodpif/denix-files/sites/37/2021/01/EO13186_MOU-DoD.pdf
- Ludlow, B., & Sixsmith, K. (1999). Long-term Effects of Military Jet Aircraft Noise Exposure during Childhood on Hearing Threshold Levels. *Noise and Health*, 33-39.
- National Institute for Occupational Health and Safety. (1998). *Criteria for a Recommended Standard Occupational Noise Exposure, Revised Criteria*. Cincinnati: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.
- NAVFAC Washington. (2016, March). Navy District Washington Resource Area Standard Language.
- United States Environmental Protection Agency. (1974). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. EPA 550/9-74-004. Washington, DC: Office of Noise Abatement and Control.
- United States Environmental Protection Agency. (1982). *Guidelines for Noise Impact Analysis*. EPA 550/9-82-105. Washington, DC: Office of Noise Abatement and Control.
- USFWS. (2021). *Birds of Conservation Concern 2021*. Retrieved from <https://www.fws.gov/sites/default/files/documents/birds-of-conservation-concern-2021.pdf>
- U.S. Government. (2001). *Federal Register Vol. 66, No. 11*. Retrieved from EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds: <https://www.govinfo.gov/content/pkg/FR-2001-01-17/pdf/01-1387.pdf>
- U.S. Navy. (2020). *Integrated Natural Resources Management Plan for Naval Support Facility Indian Head*.

1 **Appendix B Public Involvement and Agency Correspondence**
2 **Materials**

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General Public and Agency Involvement

Draft EA Agency Letter (November 25, 2024)



DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY SOUTH POTOMAC
6509 SAMPSON ROAD, BLDG 101
DAHLGREN, VIRGINIA 22448

5090

Ser PRSI42TW/1XX

November 25, 2024

NAME
ORGANIZATION
ADDRESS
ADDRESS
ADDRESS

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR CONTRUCTION OF AN
UNDERWATER TEST TANK FACILITY AT NAVAL SUPPORT FACILITY
INDIAN HEAD, MARYLAND

Dear Mr./Ms. Name:

The United States Navy (Navy) has prepared a Draft Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality (CEQ) and Navy procedures for implementing NEPA. The Draft EA evaluates the potential effects associated with constructing and operating a new aboveground underwater test tank (UTT) facility (the "Proposed Action") at Naval Support Facility (NSF) Indian Head in Indian Head, Maryland (Enclosure 1). The aboveground UTT would be used to develop new Explosive Ordnance Disposal (EOD) underwater technologies and energetic systems for Navy EOD divers.

The purpose of the Proposed Action is to provide the facilities to develop new underwater technologies and energetic systems for Navy EOD divers. The action is needed to advance the tactics and technologies that assist Navy personnel in clearing underwater hazards. The technologies and systems developed through research, development, test, and evaluation (RDT&E) work at this facility would aid in the protection of the warfighter. Navy EOD personnel handle chemical, biological, and radiological threats while performing duties such as detonating and demolishing hazardous munitions, neutralizing various ordnance, remotely disabling unsafe ordnance, and clearing waterways of mines in support of ships and submarines.

The UTT facility would include the aboveground UTT; a built-up shed; control room; concrete pads; and associated utilities, storm water management structures, pavement, and driveways/parking areas. A containment dike would be installed around the UTT and tree clearing of 50 feet around the facilities would be required for a firebreak. Concrete pads would be installed for the UTT, wastewater tank, built-up shed, and control room.

The Navy is considering two alternative locations to construct the aboveground UTT facility, both on the western side of Stump Neck Annex. The Navy also evaluated a No Action Alternative.

Under Alternative 1 (Enclosure 2), the Proposed Action would be constructed at the corner of Lewis Road and Archer Avenue. As the site is forested, it would be cleared and graded to accommodate development resulting in approximately 43,560 square feet (sq ft) (1 acre) of earth disturbance and 39,006 sq ft (0.9 acres) of tree removal. Utilities would be extended to connect with existing infrastructure adjacent to the site. The construction would result in approximately 13,068 sq ft (0.3 acres) of new impervious surface for the access road, concrete pads, parking area, and containment dike. The UTT facility would comply with explosive safety siting requirements.

With Alternative 2 (Enclosure 3), the Proposed Action would be constructed at Stump Neck Annex off Archer Avenue. At this location, the site would be graded to accommodate development and the existing forested area cleared. This would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal. New infrastructure would be installed and connected to the existing infrastructure adjacent to Archer Avenue near the proposed site entrance. The existing gravel drive would accommodate construction later be paved when the facility is complete. In addition, a paved parking lot would be constructed and an access control gate by Archer Road would be installed. The size of the facilities would be the same as described in the Proposed Action and under Alternative 1. Alternative 2 would comply with explosive safety siting requirements.

The Alternative 2 site is located primarily within the 100-year floodplain and partially within the 500-year floodplain. In accordance with Executive Order (EO) 11988, *Floodplain Management* and EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholders*, federal agencies must notify the public and solicit comments on actions impacting floodplains. Furthermore, federal agencies must implement more rigid floodplain definitions for planning purposes, either using the 500-year floodplain for facility planning or elevated floodplain contours 2–3 feet above base flood elevation projections. Under Alternative 2, flood risks would be mitigated by constructing the UTT facility and any flood-susceptible utilities at a minimum of 3 feet above the 100-year flood level, or a waiver would be sought to comply with EO 11988. If the Navy finds that there is no practicable alternative to constructing the Proposed Action within the floodplain, a Finding of No Practicable Alternative (FONPA) would be prepared with the Final EA.

Under the No Action Alternative, the Navy would not construct the UTT facility. The Navy's ability to develop new EOD underwater technologies and energetic systems would be limited, reducing the Navy's capability to address emerging threats for their EOD divers.

5090
Ser PRSI42TW/1XX
November 25, 2024

The Navy would like to invite you and other stakeholders to review the Draft EA, which is available for a 30-day review period online at: <https://ndw.cnid.navy.mil/nsfihtankea>. Comments on the Draft EA may be submitted via email to NAVFACWashNEPA1@navy.mil, or via U.S. mail to NAVFAC Washington, ATTN: Ms. Calle Biles, 1314 Harwood Street SE, Building 212, Washington Navy Yard, DC 20374. Comments must be sent via email or postmarked no later than 11:59 pm EST on January 10, 2025, to be considered in Final EA.

The Navy invites you and other stakeholders to attend an open house public meeting on the Draft EA on Wednesday December 18, 2024 from 6:00 to 8:30 p.m. at the Velocity Center (4465 Indian Head Hwy, Indian Head, MD 20640). The purpose of this meeting is to inform the public and other stakeholders about the Proposed Action, the alternatives and analysis within the Draft EA, to answer questions, and to solicit public comments.

If you have any questions or comments, or need additional information, please contact Ms. Calle Biles at NAVFACWashNEPA1@navy.mil.

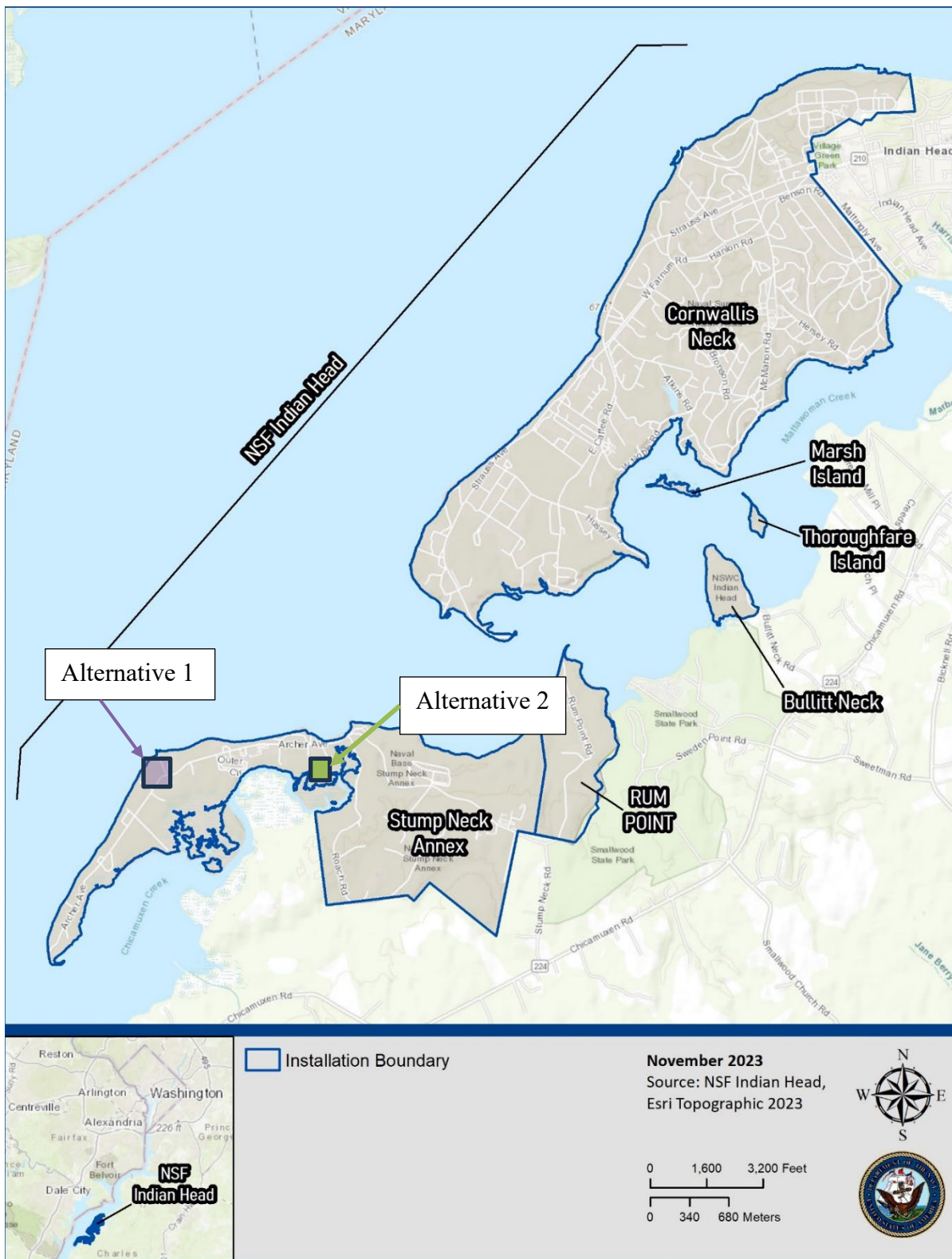
Sincerely,

J. R. TROCCHIO (Acting)
By direction

Enclosures: 1. Location of NSF Indian Head
2. Alternative 1 for Proposed Underwater Test Tank Facility on NSF Indian Head
3. Alternative 2 for Proposed Underwater Test Tank Facility on NSF Indian Head

Copy to: C. Biles (NAVFACWASH)

Unique ID# EAXX-007-17-USN-1727782357



Location map of NSF Indian Head, Indian Head, Maryland

Enclosure (1)



Alternative 1 for Proposed Underwater Test Tank Facility on NSF Indian Head

Enclosure (2)



Alternative 2 for Proposed Underwater Test Tank Facility on NSF Indian Head

Enclosure (3)

1 Agency Distribution List for the Draft EA

2 The notice of availability for the Draft EA was distributed to the following stakeholders.

Recipient	Agency
Genevieve LaRouche, Project Leader	U.S. Fish and Wildlife Service Chesapeake Bay Field Office
Carrie Traver	U.S. Environmental Protection Agency, Region 3 NEPA Program
Jamie Loichinger	Advisory Council on Historic Preservation
—	U.S. Army Corps of Engineers, Baltimore District
Heather Hepburn, Western Regional Chief	Maryland Department of the Environment, Tidal Wetlands Division, Wetlands and Waterways Program
Jeffrey Thompson, Regional Chief	Maryland Department of the Environment, Nontidal Wetlands Division, Wetlands and Waterways Program
Lori Byrne, Environmental Review Specialist	Maryland Department of Natural Resources, Wildlife and Heritage Service
Laura Canton	Maryland Department of Natural Resources, Coastal Policy Coordinator
Elizabeth Hughes	Maryland Historical Trust, State Historic Preservation Office
Danielle Spendiff	Maryland Department of the Environment Federal Consistency Coordinator
—	Maryland State Clearinghouse
Mark Belton	Charles County Administrator
Charles Rice, Planning Director	Charles County Division of Planning and Zoning
Ryan Hicks, Town Manager	Town of Indian Head
Nake Merkel, Planning and Zoning Administrator	Town of Indian Head
Native American Tribal Recipients	
Susan Bachor, Tribal Historic Preservation Officer	Delaware Tribe of Indians
Katelyn Lucas, Tribal Historic Preservation Office	Delaware Nation

Endangered Species Act Coordination
U.S. Fish and Wildlife Service List of Threatened and Endangered Species, Alternative 1
(IPaC; November 14, 2024)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127



In Reply Refer To:

11/14/2024 16:14:23 UTC

Project Code: 2025-0019544

Project Name: Stump Neck Underwater Test Tank Facility - Alternative 1

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

PROJECT SUMMARY

Project Code: 2025-0019544

Project Name: Stump Neck Underwater Test Tank Facility - Alternative 1

Project Type: Military Development

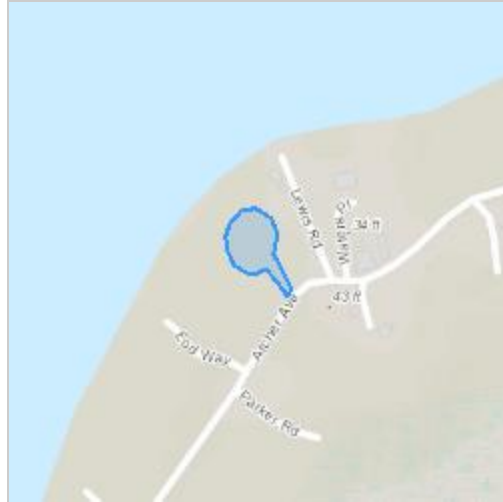
Project Description: The United States Department of the Navy (Navy) proposes to construct and operate an underwater test tank (UTT) facility to conduct controlled underwater explosions of up to 500 grams of net explosive weight (NEW) of Trinitrotoluene (TNT). The aboveground UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy Explosive Ordnance Disposal (EOD) divers, such as newly developed disruptors and sensors and methods of addressing emerging threats. The facility would include the aboveground UTT, build-up shed, control room, concrete pads, lightning masts, associated utilities, a parking lot and an access road. A concrete containment dike and splash guards would be installed around the UTT facility and a clearing of 50 feet around all the facilities would be required for a firebreak. Personnel and traffic would not increase due to the proposed project.

Under Alternative Site 1, the proposed action would be constructed at the corner of Lewis Road and Archer Avenue. The site is currently forested and would be cleared and graded to accommodate development. Site development would include approximately 43,560 square feet (sq ft) (1 acre) of earth disturbance and 39,006 sq ft (0.9 acres) of tree removal. Utilities would be installed and tied into existing utilities along Archer Avenue.

Under Alternative Site 2, the proposed action would be constructed at Stump Neck Annex off Archer Avenue. At this location, the site would be graded to accommodate development and the existing forested/early successional area cleared. This would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal. New infrastructure and utilities would be installed and connected to existing utilities adjacent to Archer Avenue.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.55177825,-77.23577129138437,14z>



Counties: Charles County, Maryland

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPAC USER CONTACT INFORMATION

Agency: Navy
Name: Seth Berry
Address: 3972 Ward Road, Suite 101
City: Indian Head
State: MD
Zip: 20640
Email: seth.m.berry.civ@us.navy.mil
Phone: 7032297114

**U.S. Fish and Wildlife Service List of Threatened and Endangered Species, Alternative 2
(IPaC; November 14, 2024)**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127



In Reply Refer To:

11/14/2024 16:02:19 UTC

Project Code: 2024-0097150

Project Name: Stump Neck Underwater Test Tank Facility - Alternative 2

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

PROJECT SUMMARY

Project Code: 2024-0097150

Project Name: Stump Neck Underwater Test Tank Facility - Alternative 2

Project Type: Military Development

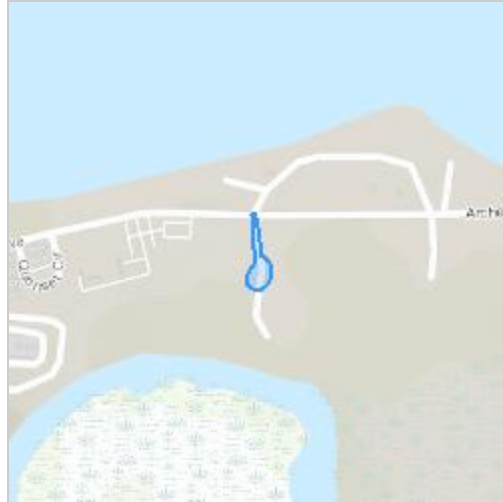
Project Description: The United States Department of the Navy (Navy) proposes to construct and operate an underwater test tank (UTT) facility to conduct controlled underwater explosions of up to 500 grams of net explosive weight (NEW). The aboveground UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy Explosive Ordnance Disposal (EOD) divers, such as newly developed disruptors and sensors and new methods of addressing emerging threats. The facility would include the aboveground UTT, build-up shed, control room, concrete pads, lightning masts, associated utilities, parking lot and gravel road. A concrete containment dike would be installed around the UTT facility and a clearing of 50 feet around all the facilities would be required for a fire break. Personnel and traffic would not increase due to the proposed action.

The Navy has identified and will analyze two action alternatives within the EA. Under Alternative 1, the proposed action would be implemented at the intersection of Lewis Road and Archer Avenue. At this location, the site would be cleared including the existing forested area. This would include approximately 43,560 square feet (1 acre) of earth disturbance and 39,006 square feet (0.9 acres) of tree removal. Currently, the site does not have usable utilities for mechanical infrastructure. New infrastructure would be installed and connected to the existing utilities along Archer Avenue.

Under Alternative Site 2, the proposed action would be constructed at Stump Neck Annex off Archer Avenue. At this location, the site would be graded to accommodate development and the existing forested/early successional area cleared. This would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal. New infrastructure and utilities would be installed and connected to existing utilities adjacent to Archer Avenue.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.5533919,-77.22329476661517,14z>



Counties: Charles County, Maryland

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Sensitive Joint-vetch <i>Aeschynomene virginica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/855	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPAC USER CONTACT INFORMATION

Agency: Navy
Name: Seth Berry
Address: 3972 Ward Road, Suite 101
City: Indian Head
State: MD
Zip: 20640
Email: seth.m.berry.civ@us.navy.mil
Phone: 7032297114

U.S. Fish and Wildlife Service Determination for Northern Long-Eared Bat and Tricolored Bat, Alternative 1 (November 14, 2024)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127



In Reply Refer To:

11/14/2024 16:17:46 UTC

Project code: 2025-0019544

Project Name: Stump Neck Underwater Test Tank Facility - Alternative 1

Federal Nexus: yes

Federal Action Agency (if applicable): Navy

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Stump Neck Underwater Test Tank Facility - Alternative 1'

Dear Seth Berry:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on November 14, 2024, for 'Stump Neck Underwater Test Tank Facility - Alternative 1' (here forward, Project). This project has been assigned Project Code 2025-0019544 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your Project, the Project may need to apply the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office.***

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based on your IPaC submission and a standing analysis completed by the Service, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Endangered	NLAA
Tricolored Bat (<i>Perimyotis subflavus</i>)	Proposed Endangered	NLAA

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete for northern long-eared bat and/or tricolored bat and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat or tricolored bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat or tricolored bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat and/or tricolored bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat and Tricolored Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the Chesapeake Bay Ecological Services Field Office and reference Project Code 2025-0019544 associated with this Project.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Stump Neck Underwater Test Tank Facility - Alternative 1

2. Description

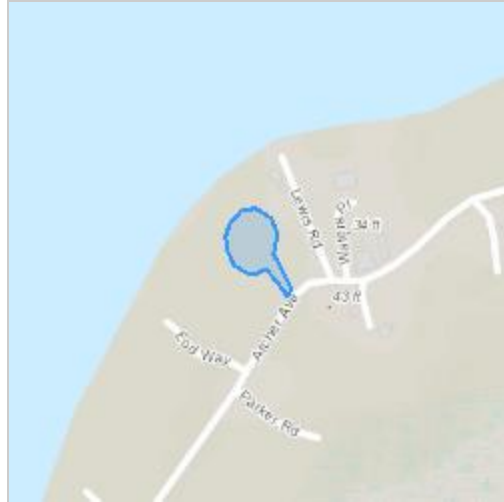
The following description was provided for the project 'Stump Neck Underwater Test Tank Facility - Alternative 1':

The United States Department of the Navy (Navy) proposes to construct and operate an underwater test tank (UTT) facility to conduct controlled underwater explosions of up to 500 grams of net explosive weight (NEW) of Trinitrotoluene (TNT). The aboveground UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy Explosive Ordnance Disposal (EOD) divers, such as newly developed disruptors and sensors and methods of addressing emerging threats. The facility would include the aboveground UTT, build-up shed, control room, concrete pads, lightning masts, associated utilities, a parking lot and an access road. A concrete containment dike and splash guards would be installed around the UTT facility and a clearing of 50 feet around all the facilities would be required for a firebreak. Personnel and traffic would not increase due to the proposed project.

Under Alternative Site 1, the proposed action would be constructed at the corner of Lewis Road and Archer Avenue. The site is currently forested and would be cleared and graded to accommodate development. Site development would include approximately 43,560 square feet (sq ft) (1 acre) of earth disturbance and 39,006 sq ft (0.9 acres) of tree removal. Utilities would be installed and tied into existing utilities along Archer Avenue.

Under Alternative Site 2, the proposed action would be constructed at Stump Neck Annex off Archer Avenue. At this location, the site would be graded to accommodate development and the existing forested/early successional area cleared. This would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal. New infrastructure and utilities would be installed and connected to existing utilities adjacent to Archer Avenue.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.55177825,-77.23577129138437,14z>



DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

Automatically answered

No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

Automatically answered

No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

No

10. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

11. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

No

12. Will the action cause effects to a bridge?

Note: Covered bridges should be considered as bridges in this question.

No

13. Will the action result in effects to a culvert or tunnel at any time of year?

No

14. Are trees present within 1000 feet of the action area?

Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

15. Does the action include the intentional exclusion of bats from a building or structure?

Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

No

16. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats**?

No

17. Will the action cause construction of one or more new roads open to the public?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

18. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic permanently or temporarily on one or more existing roads?

Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

20. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

Note: For information regarding NSF/ANSI 60 please visit <https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects>

No

21. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

No

22. Will the action include drilling or blasting?

No

23. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

Yes

24. Will the military training affect suitable northern long-eared bat and/or tricolored bat summer habitat?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

25. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

No

26. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

27. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

28. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

Yes

29. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

No

30. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

No

31. Does the project intersect with the 0- 9.9% forest density category?

Automatically answered

No

32. Does the project intersect with the 10.0- 19.9% forest density category map?

Automatically answered

No

33. Does the project intersect with the 20.0- 29.9% forest density category map?

Automatically answered

Yes

34. Does the project intersect with the 30.0- 100% forest density category map?

Automatically answered

No

35. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 40 acres in total extent?

No

36. Will the proposed action result in the use of prescribed fire?

Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

No

37. Does the action area intersect the northern long-eared bat species list area?

Automatically answered

Yes

38. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

Automatically answered

No

39. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

40. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?

If unsure, answer "Yes."

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

41. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's [Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines](#) been conducted within the project area?

No

42. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

43. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area?

Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey [Guidelines](#).

No

44. Does the action area intersect the tricolored bat species list area?

Automatically answered

Yes

45. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

46. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?
(If unsure, answer ""Yes."")

Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the [Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines](#).

Yes

47. Do any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pine trees)?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

48. Will any tree cutting/trimming or other knocking or bringing down of trees be conducted during the Pup Season for tricolored bat?

Note: Bat activity periods for your state can be found in Appendix L of the [Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines](#).

No

49. Do you have any documents that you want to include with this submission?

No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

0.9

IPAC USER CONTACT INFORMATION

Agency: Navy
Name: Seth Berry
Address: 3972 Ward Road, Suite 101
City: Indian Head
State: MD
Zip: 20640
Email: seth.m.berry.civ@us.navy.mil
Phone: 7032297114

U.S. Fish and Wildlife Service Determination for Northern Long-Eared Bat and Tricolored Bat, Alternative 2 (November 14, 2024)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127



In Reply Refer To:

11/14/2024 16:00:32 UTC

Project code: 2024-0097150

Project Name: Stump Neck Underwater Test Tank Facility - Alternative 2

Federal Nexus: yes

Federal Action Agency (if applicable): Navy

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Stump Neck Underwater Test Tank Facility - Alternative 2'

Dear Seth Berry:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on November 14, 2024, for 'Stump Neck Underwater Test Tank Facility - Alternative 2' (here forward, Project). This project has been assigned Project Code 2024-0097150 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your Project, the Project may need to apply the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office.***

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based on your IPaC submission and a standing analysis completed by the Service, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Endangered	NLAA
Tricolored Bat (<i>Perimyotis subflavus</i>)	Proposed Endangered	NLAA

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete for northern long-eared bat and/or tricolored bat and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat or tricolored bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat or tricolored bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat and/or tricolored bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat and Tricolored Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate
- Sensitive Joint-vetch *Aeschynomene virginica* Threatened

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the Chesapeake Bay Ecological Services Field Office and reference Project Code 2024-0097150 associated with this Project.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Stump Neck Underwater Test Tank Facility - Alternative 2

2. Description

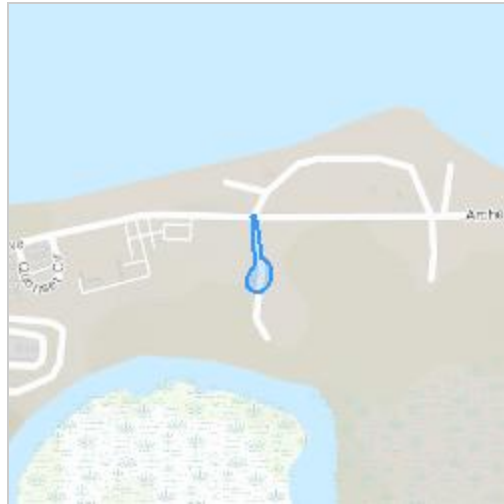
The following description was provided for the project 'Stump Neck Underwater Test Tank Facility - Alternative 2':

The United States Department of the Navy (Navy) proposes to construct and operate an underwater test tank (UTT) facility to conduct controlled underwater explosions of up to 500 grams of net explosive weight (NEW). The aboveground UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy Explosive Ordnance Disposal (EOD) divers, such as newly developed disruptors and sensors and new methods of addressing emerging threats. The facility would include the aboveground UTT, build-up shed, control room, concrete pads, lightning masts, associated utilities, parking lot and gravel road. A concrete containment dike would be installed around the UTT facility and a clearing of 50 feet around all the facilities would be required for a fire break. Personnel and traffic would not increase due to the proposed action.

The Navy has identified and will analyze two action alternatives within the EA. Under Alternative 1, the proposed action would be implemented at the intersection of Lewis Road and Archer Avenue. At this location, the site would be cleared including the existing forested area. This would include approximately 43,560 square feet (1 acre) of earth disturbance and 39,006 square feet (0.9 acres) of tree removal. Currently, the site does not have usable utilities for mechanical infrastructure. New infrastructure would be installed and connected to the existing utilities along Archer Avenue.

Under Alternative Site 2, the proposed action would be constructed at Stump Neck Annex off Archer Avenue. At this location, the site would be graded to accommodate development and the existing forested/early successional area cleared. This would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal. New infrastructure and utilities would be installed and connected to existing utilities adjacent to Archer Avenue.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.5533919,-77.22329476661517,14z>



DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

Automatically answered

No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

Automatically answered

No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

No

10. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

11. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

No

12. Will the action cause effects to a bridge?

Note: Covered bridges should be considered as bridges in this question.

No

13. Will the action result in effects to a culvert or tunnel at any time of year?

No

14. Are trees present within 1000 feet of the action area?

Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

15. Does the action include the intentional exclusion of bats from a building or structure?

Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

No

16. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats**?

No

17. Will the action cause construction of one or more new roads open to the public?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

18. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic permanently or temporarily on one or more existing roads?

Note: For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

20. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

Note: For information regarding NSF/ANSI 60 please visit <https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects>

No

21. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

No

22. Will the action include drilling or blasting?

No

23. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

Yes

24. Will the military training affect suitable northern long-eared bat and/or tricolored bat summer habitat?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

25. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

No

26. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

27. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

28. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

Yes

29. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

No

30. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

No

31. Does the project intersect with the 0- 9.9% forest density category?

Automatically answered

No

32. Does the project intersect with the 10.0- 19.9% forest density category map?

Automatically answered

No

33. Does the project intersect with the 20.0- 29.9% forest density category map?

Automatically answered

Yes

34. Does the project intersect with the 30.0- 100% forest density category map?

Automatically answered

No

35. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 40 acres in total extent?

No

36. Will the proposed action result in the use of prescribed fire?

Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

No

37. Does the action area intersect the northern long-eared bat species list area?

Automatically answered

Yes

38. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

Automatically answered

No

39. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

40. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?

If unsure, answer "Yes."

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

41. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's [Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines](#) been conducted within the project area?

No

42. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

43. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area?

Note: Bat activity periods for your state can be found in Appendix L of the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey [Guidelines](#).

No

44. Does the action area intersect the tricolored bat species list area?

Automatically answered

Yes

45. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

46. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?
(If unsure, answer ""Yes."")

Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the [Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines](#).

Yes

47. Do any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pine trees)?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

48. Will any tree cutting/trimming or other knocking or bringing down of trees be conducted during the Pup Season for tricolored bat?

Note: Bat activity periods for your state can be found in Appendix L of the [Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines](#).

No

49. Do you have any documents that you want to include with this submission?

No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

0.79

IPAC USER CONTACT INFORMATION

Agency: Navy
Name: Seth Berry
Address: 3972 Ward Road, Suite 101
City: Indian Head
State: MD
Zip: 20640
Email: seth.m.berry.civ@us.navy.mil
Phone: 7032297114



Coastal Zone Management Act Coordination
Letter to Federal Consistency Coordinator (November 18, 2024)

DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY SOUTH POTOMAC
6509 SAMPSON ROAD, BLDG 101
DAHLGREN, VIRGINIA 22448

5090
Ser PRSI42SB/067
November 18, 2024

Ms. Danielle Spendiff
Federal Consistency Coordinator
Wetlands & Waterways Program/Water & Science Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Dear Ms. Spendiff:

In accordance with the Federal Coastal Zone Management Act (CZMA) of 1972, as amended, and the CZMA Memorandum of Understanding (MOU), signed on May 8, 2013, between the State of Maryland and the United States Department of Defense, Naval Support Facility (NSF) Indian Head requests concurrence with the Federal Consistency Determination for the construction of the Underwater Test Tank (UTT) Facility at Stump Neck Annex.

As required by the MOU, Enclosures (1) through (5) provide the proposed project description, site location and the basis for this Federal Consistency Determination as relevant to the enforceable coastal policies.

NSF Indian Head requests the Maryland Department of the Environment's concurrence with its Federal Consistency Determination for activities associated with the construction of the UTT Facility at Stump Neck Annex. NSF Indian Head will presume concurrence if a response is not received within 60 days.

Please direct all written correspondence to:

ATTN: Director, Environmental Division
Department of the Navy, PWD South Potomac
3972 Ward Road, Suite 101
Indian Head, MD 20640-5157

If you have any questions during the review process, please contact Mr. Seth Berry, NSF Indian Head Natural Resources Program Manager, at seth.m.berry.civ@us.navy.mil or (703) 229-7114.

Sincerely,

TROCCHIO.JOSEP
H.R.1402749632

Digitally signed by TROCCHIO.JOSEPH.R.1402749632
Date: 2024.11.18 12:45:58 -05'00'

J. R. TROCCHIO, (Acting)
By direction

Enclosures: 1. Proposed Project Description
2. Location of Alternative 1
3. Location of Alternative 2
4. Basis of Determination
5. Core Policies Checklist

Proposed Project Description

a) **PROJECT LOCATION** – There are two sites being considered for the proposed project on Naval Support Facility (NSF) Indian Head Stump Neck Annex (Enclosure 1). Alternative Site 1 would be constructed in a forested area near the intersection of Lewis Road and Archer Avenue (Enclosure 2). Alternative Site 2 (Enclosure 3) would be constructed adjacent to Archer Avenue across from the Stump Neck Annex helicopter pad. Alternative Site 1 would not be visible from the shoreline of the Potomac River. Alternative Site 2 would not be visible from the shoreline of the Potomac River or Chicamuxen Creek but it is within close proximity to the Chicamuxen Creek.

b) **PROJECT DESCRIPTION** – The United States Department of the Navy (Navy) proposes to construct and operate an underwater test tank (UTT) facility to conduct controlled underwater explosions of up to 500 grams of net explosive weight (NEW) of Trinitrotoluene (TNT). The aboveground UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy Explosive Ordnance Disposal (EOD) divers, such as newly developed disruptors and sensors and methods of addressing emerging threats. The facility would include the aboveground UTT, build-up shed, control room, concrete pads, lightning masts, associated utilities, a parking lot and an access road. A concrete containment dike and splash guards would be installed around the UTT facility and a clearing of 50 feet around all the facilities would be required for a firebreak. Personnel and traffic would not increase due to the proposed project.

Under Alternative Site 1, the proposed action would be constructed at the corner of Lewis Road and Archer Avenue. The site is currently forested and would be cleared and graded to accommodate development. Site development would include approximately 43,560 square feet (sq ft) (1 acre) of earth disturbance and 39,006 sq ft (0.9 acres) of tree removal. Utilities would be installed and tied into existing utilities along Archer Avenue.

Under Alternative Site 2, the proposed action would be constructed at Stump Neck Annex off Archer Avenue. At this location, the site would be graded to accommodate development and the existing forested/early successional area cleared. This would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal. New infrastructure and utilities would be installed and connected to existing utilities adjacent to Archer Avenue.

c) **PUBLIC PARTICIPATION SECTION** – All work is proposed within the property boundaries of NSF Indian Head and will not impact adjacent property owners.

d) **BEST MANAGEMENT PRACTICES** – Both Alternative Sites 1 and 2 will exceed 5,000 SF of earth disturbance and, therefore, will require Maryland Department of Environment (MDE) erosion and sediment control and stormwater management review and approval.

Proposed Project Description

Construction activities shall adhere to the approved plans and MDE inspections will be conducted until the project is closed out.

e) OTHER CONSULTATIONS – Additional regulatory consultations required for the proposed project include:

- Bald and Golden Eagle Protection Act (BGEPA) – Exterior construction activities at Alternative Site 1 has the potential to impact an existing bald eagle nest during the nesting season. Management guidelines provided in the NSF Indian Head BGEPA 5-Year Programmatic Permit shall be adhered to through implementation of the NSF Indian Head Bald Eagle Management Plan. No bald eagle impacts at Alternative Site 2.
- Endangered Species Act (ESA) – Alternative Sites 1 and 2 have the potential to impact northern long-eared (yet to be identified at NSF Indian Head during survey work) and tri-colored bats due to forest clearing. Consultation with the US Fish and Wildlife Service (USFWS) shall be conducted for both bat species.
- National Historic Preservation Act (NHPA) Section 106 – NHPA Section 106 consultation would be conducted at Alternative 2 for one known archaeological site. Consultation would be conducted at Alternative 1 for one historic structure.

Alternative 1: Proposed Underwater Test Tank Facility



Alternative 2: Proposed Underwater Test Tank Facility



Basis of Determination

	Enforceable Policy	Relevant to Project	Not Relevant to Project	Impacts to Resource
General Policy				
	Core Policies	X		Air and water quality will not be impacted; scenic and ecological value of the Potomac River and Chicamuxen Creek will not be altered.
	Water Quality	X		No impacts to Potomac River or Chicamuxen Creek. No stormwater impacts. E&S controls to be installed for the project per MDE.
	Flood Hazards		X	The project will not create flooding upstream or downstream of the site; no impact to adjacent property owners.
Coastal Resources				
	Chesapeake and Atlantic Coastal Bays Critical Areas	X		No critical area designated on federal government property. Alternative 1 not visible from Potomac River shoreline, Alternative 2 is not visible from the Chicamuxen Creek shoreline.
	Tidal Wetlands		X	No tidal wetlands on either Alternative Sites 1 or 2.

Basis of Determination

	Enforceable Policy	Relevant to Project	Not Relevant to Project	Impacts to Resource
	Non-tidal Wetlands	X		A non-tidal wetland is located adjacent to Alternative Site 2, with temporary impacts proposed to a small section of 25' non-tidal wetland buffer. No non-tidal wetlands located on Alternative Site 1.
	Forests		X	Alternative Site 1 will require approximately 0.9 acres of mature forest cleared. Alternative Site 2 will require approximately 0.79 acres of early successional forest cleared.
	Historical and Archaeological Sites		X	NSFIH Cultural Resources Manager has reviewed the project and determined Section 106 consultation would be required for one archaeological site at Alternative Site 2 and one historic structure at Alternative Site 1.
	Living Aquatic Resources		X	No in-water work.

Basis of Determination

	Enforceable Policy	Relevant to Project	Not Relevant to Project	Impacts to Resource
Coastal Uses				
	Mineral Extraction		X	
	Electrical Generation and Transmission		X	
	Tidal Shore Erosion Control		X	
	Dredging and Disposal of Dredged Materials		X	
	Navigation		X	
	Transportation		X	
	Agriculture		X	
	Oil and Natural Gas Facilities		X	
	Sewage Treatment		X	

Basis of Determination

	Enforceable Policy	Relevant to Project	Not Relevant to Project	Impacts to Resource
	Development	X		<p>The UTT Facility would include the aboveground UTT, build-up shed, control room, concrete pads, lightning masts, associated utilities, parking lot and gravel road. A splash guard and concrete containment dike would be installed around the UTT facility and a clearing of 50 feet around all the facilities would be required for a fire break.</p> <p>Alternative Site 1 would include approximately 43,560 square feet (sq ft) (1 acre) of earth disturbance and 39,006 sq ft (0.9 acres) of tree removal. Alternative Site 2 would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal.</p>



Coastal Zone Management Program - Core Policies Checklist

Name of Project:

Naval Support Facility (NSF) Indian Head Underwater Test Tank (UTT) Facility

5.1. CORE POLICIES

5.1.1. Quality of Life

Quality of Life Policy 1- Air Quality. It is State policy to maintain that degree of purity of air resources which will protect the health, general welfare, and property of the people of the State. MDE (C9) Md. Code Ann., Envir. §§ 2-102 to -103.

Select appropriate response:

- ☒ Project will be consistent with Air Quality policy.
- ☐ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

No release to the air for any testing.

Quality of Life Policy 2 – Noise. The environment shall be free from noise which may jeopardize health, general welfare, or property, or which degrades the quality of life. MDE (C9) COMAR 26.02.03.02.

Select appropriate response:

- ☒ Project will be consistent with Noise policy.
- ☐ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All testing will be underwater, noise will be very minimal.



MARYLAND Coastal Zone Management Program - Core Policies Checklist

Quality of Life Policy 3– Protection of State Wild Lands. The unique ecological, geological, scenic, and contemplative aspects of State wild lands shall not be affected in a manner that would jeopardize the future use and enjoyment of those lands as wild. DNR (C7) Md. Code Ann., Nat. Res. §§ 5-1201, -1203.

Select appropriate response:

- ☒ Project will be consistent with State Wild Lands Protection policy.
- ☐ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 4 – Protection of State Lands & Cultural Resources. The safety, order, and natural beauty of State parks and forests, State reserves, scenic preserves, parkways, historical monuments and recreational areas shall be preserved. DNR (B1) Md. Code. Ann., Nat. Res. § 5-209.

Select appropriate response:

- ☐ Project will be consistent with Protection of State Lands & Cultural Resources policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 5 – Natural Character & Scenic Value of Rivers & Waterways. The natural character and scenic value of a river or waterway must be given full consideration before the development of any water or related land resources including construction of improvements, diversions, roadways, crossings, or channelization. MDE/DNR (C7) Md. Code Ann., Nat. Res. § 8-405; COMAR 26.17.04.11.

Select appropriate response:

- ☐ Project will be consistent with policy protecting Natural Character & Scenic Value of Rivers & Waterways.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

No impact to waterways and not visible from Potomac River or Chicamuxen Creek shorelines.



Coastal Zone Management Program - Core Policies Checklist

Quality of Life Policy 6 –Natural Flow of Scenic & Wild Rivers. A dam or other structure that impedes the natural flow of a scenic or wild river may not be constructed, operated, or maintained, and channelization may not be undertaken, until the applicant considers alternatives less harmful to the scenic and wild resource. Construction of an impoundment upon a scenic or wild river is contrary to the public interest, if that project floods an area of unusual beauty, blocks the access to the public of a view previously enjoyed, or alters the stream's wild qualities. MDE/DNR (C7) Md. Code Ann., Nat. Res. § 8-406; COMAR 26.17.04.11.

Select appropriate response:

- ☐ Project will be consistent with policy protecting Natural Flow of Scenic & Wild Rivers.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 7 – Atlantic Coast Development. Any land clearing, construction activity, or the construction or placement of permanent structures is prohibited within the Beach Erosion Control District except the construction and installation of a qualified submerged renewable energy line, if the project does not result in any significant permanent environmental damage to the Beach Erosion Control District and is not constructed or installed within the Assateague State Park, and any project or activity specifically for storm control, beach erosion and sediment control, or maintenance projects designed to benefit the Beach Erosion Control District. MDE/DNR (B1) Md. Code Ann., Nat. Res. § 8-1102.

Select appropriate response:

- ☐ Project will be consistent with policy ensuring Environmentally Beneficial Atlantic Shoreline Development.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

Quality of Life Policy 8 – Integrity & Natural Character of Assateague Island. Activities which will adversely affect the integrity and natural character of Assateague Island will be inconsistent with the State's Coastal Management Program, and will be prohibited. MDE/DNR (B1) Md. Code. Ann., Nat. Res. §§ 5-209, 8-1102.

Select appropriate response:

- ☐ Project will be consistent with policy protecting the Integrity & Natural Character of Assateague Island.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 9 – Public Outreach. An opportunity for a public hearing shall be provided for projects in non-tidal waters that dredge, fill, bulkhead, or change the shoreline; construct or reconstruct a dam; or create a waterway, except in emergency situations. MDE (A3) COMAR 26.17.04.13A.

Select appropriate response:

- ☐ Project will be consistent with Public Outreach policy for relevant projects.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 10 – Erosion & Sediment Control. Soil erosion shall be prevented to preserve natural resources and wildlife; control floods; prevent impairment of dams and reservoirs; maintain the navigability of rivers and harbors; protect the tax base, the public lands, and the health, safety and general welfare of the people of the State, and to enhance their living environment. MDA (C4) Md. Code Ann., Agric. § 8-102(d).

Select appropriate response:

- ☒ Project will be consistent with Erosion & Sediment Control policy.
- ☐ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

MDE E&S and Storm Water Management Plan approval shall be obtained before project begins.



Coastal Zone Management Program - Core Policies Checklist

Quality of Life Policy 11 – Safeguards for Outer Continental Shelf Development. Operations on the Outer Continental Shelf must be conducted in a safe manner by well-trained personnel using technology, precautions, and techniques sufficient to prevent or minimize the likelihood of blowouts, loss of well control, fires, spillages, physical obstruction to other users of the waters or subsoil and seabed, or other occurrences which may cause damage to the environment or property, or which may endanger life or health. (B2) Md. Code Ann., Envir. §§ 17-101 to -403; COMAR 26.24.01.01; COMAR 26.24.02.01, .03; COMAR 26.24.05.01.

Select appropriate response:

- ☐ Project will be consistent with policy ensuring Safeguards for Outer Continental Shelf Development.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

5.1.2. Waste & Debris Management

Waste & Debris Management Policy 1 – Hazardous Waste Management. Controlled hazardous substances may not be stored, treated, dumped, discharged, abandoned, or otherwise disposed anywhere other than a permitted controlled hazardous substance facility or a facility that provides an equivalent level of environmental protection. MDE (D4) Md. Code Ann., Envir. § 7-265(a).

Select appropriate response:

- ☐ Project will be consistent with Hazardous Waste Management policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Waste & Debris Management Policy 2 – Hazardous Waste Management in Port of Baltimore. A person may not introduce in the Port of Baltimore any hazardous materials, unless the cargo is properly classed, described, packaged, marked, labeled, placarded, and approved for highway, rail, or water transportation. MDOT (D3) COMAR 11.05.02.04A.

Select appropriate response:

- ☐ Project will be consistent with Hazardous Waste Management in Port of Baltimore policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

5.1.3. Water Resources Protection & Management

Water Resources Protection & Management Policy 1 – Pollution Discharge Permit. No one may add, introduce, leak, spill, or emit any liquid, gaseous, solid, or other substance that will pollute any waters of the State without State authorization. MDE (A5) Md. Code Ann., Envir. §§ 4-402, 9-101, 9-322.

Select appropriate response:

- ☐ Project will be consistent with water policy requiring a Pollution Discharge Permit.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 2 – Protection of Designated Uses. All waters of the State shall be protected for water contact recreation, fish, and other aquatic life and wildlife. Shellfish harvesting and recreational trout waters and waters worthy of protection because of their unspoiled character shall receive additional protection. MDE (A1) COMAR 26.08.02.02.

Select appropriate response:

- ☐ Project will be consistent with Protection of Designated Uses policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

No in-water work.

Water Resources Protection & Management Policy 3 – Prohibition of Harmful Toxic Impacts. The discharge of any pollutant which will accumulate to toxic amounts during the expected life of aquatic organisms or produce deleterious behavioral effects on aquatic organisms is prohibited. MDE (A4) COMAR 26.08.03.01.

Select appropriate response:

- ☐ Project will be consistent with water policy Prohibiting Harmful Toxic Impacts.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

Water Resources Protection & Management Policy 4 – Pre-Development Discharge Permit

Requirement. Before constructing, installing, modifying, extending, or altering an outlet or establishment that could cause or increase the discharge of pollutants into the waters of the State, the proponent must hold a discharge permit issued by the Department of the Environment or provide an equivalent level of water quality protection. MDE (D6) Md. Code Ann., Envir. § 9-323(a).

Select appropriate response:

- ☐ Project will be consistent with water policy requiring a Pre-Development Discharge Permit.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 5 – Use of Best Available Technology or Treat to Meet Standards. The use of best available technology is required for all permitted discharges into State waters, but if this is insufficient to comply with the established water quality standards, additional treatment shall be required and based on waste load allocation. MDE (D4) COMAR 26.08.03.01C.

Select appropriate response:

- ☐ Project will be consistent with Use of Best Available Technology or Treat to Meet Standards water policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

Water Resources Protection & Management Policy 6 – Control of Thermal Discharges. Thermal discharges shall be controlled so that the temperature outside the mixing zone (50 feet radially from the point of discharge) meets the applicable water quality criteria or discharges comply with the thermal mixing zone criteria. MDE (D4) COMAR 26.08.03.03C.

Select appropriate response:

- ☐ Project will be consistent with Control of Thermal Discharges water policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 7 – Pesticide Storage. Pesticides shall be stored in an area located at least 50 feet from any water well or stored in secondary containment approved by the Department of the Environment. MDA (C4) COMAR 15.05.01.06.

Select appropriate response:

- ☐ Project will be consistent with Pesticides Storage water policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

Water Resources Protection & Management Policy 8 – Stormwater Management. Any development or redevelopment of land for residential, commercial, industrial, or institutional purposes shall use small-scale non-structural stormwater management practices and site planning that mimics natural hydrologic conditions, to the maximum extent practicable. Development or redevelopment will be consistent with this policy when channel stability and 100 percent of the average annual predevelopment groundwater recharge are maintained, nonpoint source pollution is minimized, and structural stormwater management practices are used only if determined to be absolutely necessary. MDE (C9) Md. Code Ann., Envir. § 4-203; COMAR 26.17.02.01, .06.

Select appropriate response:

- ☒ Project will be consistent with Stormwater Management policy.
- ☐ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

MDE E&S and Storm Water Management Plan shall be obtained prior to beginning work.

Water Resources Protection & Management Policy 9 – Unpermitted Dumping of Used Oil. Unless otherwise permitted, used oil may not be dumped into sewers, drainage systems, or any waters of the State or onto any public or private land. MDE (D4) Md. Code Ann., Envir. § 5-1001(f).

Select appropriate response:

- ☐ Project will be consistent with Unpermitted Dumping of Used Oil water policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 10 – Toxicity Monitoring. If material being dumped into Maryland waters or waters off Maryland's coastline has demonstrated actual toxicity or potential for being toxic, the discharger must perform biological or chemical monitoring to test for toxicity in the water. MDE (A5) COMAR 26.08.03.07(D); COMAR 26.08.04.01.

Select appropriate response:

- ☐ Project will be consistent with Toxicity Monitoring water policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



MARYLAND Coastal Zone Management Program - Core Policies Checklist

Water Resources Protection & Management Policy 11 – Public Outreach. Public meetings and citizen education shall be encouraged as a necessary function of water quality regulation. MDE (A2) COMAR 26.08.01.02E(3).

Select appropriate response:

- ☐ Project will be consistent with Public Outreach water policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 12 - No Adverse Impact from Water Appropriation. Any water appropriation must be reasonable in relation to the anticipated level of use and may not have an unreasonable adverse impact on water resources or other users of the waters of the State. MDE (C9) COMAR 26.17.06.02.

Select appropriate response:

- ☐ Project will be consistent with policy ensuring No Adverse Impact from Water Appropriations.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

5.1.4. Flood Hazards & Community Resilience

Flood Hazards & Community Resilience Policy 1 – No Adverse Impact. Projects in coastal tidal and non-tidal flood plains which would create additional flooding upstream or downstream, or which would have an adverse impact upon water quality or other environmental factors, are contrary to State policy. MDE (C2) Md. Code Ann., Envir. § 5-803; COMAR 26.17.05.04A.

Select appropriate response:

- ☐ Project will be consistent with No Adverse Impact flood hazard policy.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Flood Hazards & Community Resilience Policy 2 – Non-Tidal Waters and Non-Tidal Floodplains. The following policies apply to projects in non-tidal waters and non-tidal floodplains, but not non-tidal wetlands. MDE (C2) COMAR 26.17.04.01, .07,.11.

Flood Hazards & Community Resilience Policy 2a – 1-Foot Freeboard Above 100-year Flood.

Proposed floodplain encroachments, except for roadways, culverts, and bridges, shall be designed to provide a minimum of 1 foot of freeboard above the elevation of the 100-year frequency flood event. In addition, the elevation of the lowest floor of all new or substantially improved residential, commercial, or industrial structures shall also be at least 1 foot above the elevation of the 100-year frequency flood event.

Select appropriate response:

- ☐ Project will be consistent with policy requiring a 1-Foot Freeboard Above 100-Year Flood for Construction in flood hazard areas.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

Flood Hazards & Community Resilience Policy 2b – Stability of Unlined Earth Channels.

Proposed unlined earth channels may not change the tractive force associated with the 2-year and the 10-year frequency flood events, by more than 10 percent, throughout their length unless it can be demonstrated that the stream channel will remain stable.

Select appropriate response:

- ☐ Project will be consistent with policy ensuring Stability of Unlined Earth Channels.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Flood Hazards & Community Resilience Policy 2c – Stability of Lined Channels. Proposed lined channels may not change the tractive force associated with the 2-year and the 10-year frequency flood events, by more than 10 percent, at their downstream terminus unless it can be demonstrated that the stream channel will remain stable.

Select appropriate response:

- ☐ Project will be consistent with policy ensuring Stability of Lined Channels.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Flood Hazards & Community Resilience Policy 2d – Prohibition of Dam Construction in High Risk Areas. Category II, III, or IV dams may not be built or allowed to impound water in any location where a failure is likely to result in the loss of human life or severe damage to streets, major roads, public utilities, or other high value property.

Select appropriate response:

- ☐ Project will be consistent with policy Prohibiting Dam Construction in High Risk Areas.
- ☐ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

Flood Hazards & Community Resilience Policy 2e – Prohibition of Projects That Increase Risk Unless Mitigation Requirements Are Met. Projects that increase the risk of flooding to other property owners are generally prohibited, unless the area subject to additional risk of flooding is purchased, placed in designated flood easement, or protected by other means acceptable to the Maryland Department of the Environment.

Select appropriate response:

- ☐ Project will be consistent with policy Prohibiting Projects That Increase Flood Risk Unless Mitigation Requirements Are Met.
- ☐ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Flood Hazards & Community Resilience Policy 2f – Prohibition of Construction or Substantial Improvements in 100-Year Floodplain. The construction or substantial improvement of any residential, commercial, or industrial structures in the 100-year frequency floodplain and below the water surface elevation of the 100-year frequency flood may not be permitted. Minor maintenance and repair may be permitted. The modifications of existing structures for flood-proofing purposes may be permitted. Flood-proofing modifications shall be designed and constructed in accordance with specifications approved by the Maryland Department of the Environment.

Select appropriate response:

- ☐ Project will be consistent with policy Prohibiting Construction or Substantial Improvements in 100-Year Floodplain.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:



Coastal Zone Management Program - Core Policies Checklist

Flood Hazards & Community Resilience Policy 2g – Channelization Is Discouraged.

Channelization shall be the least favored flood control technique.

Select appropriate response:

- ☐ Project will be consistent with policy Discouraging Channelization.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Flood Hazards & Community Resilience Policy 2h – Preference of Multi-Purpose Use Projects, Project Accountability, & 50% Reduction in Damages. Multiple purpose use shall be preferred over single purpose use, the proposed project shall achieve the purposes intended, and, at a minimum, project shall provide for a 50 percent reduction of the average annual flood damages.

Select appropriate response:

- ☐ Project will be consistent with policy that ensures a Preference to Multi-Purpose Use Projects, Project Accountability & 50% Reduction in Damages.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Flood Hazards & Community Resilience Policy 3 – Development-Related Runoff Restrictions for the Gwynne Falls and Jones Falls Watersheds. Development may not increase the downstream peak discharge for the 100-year frequency storm event in the following watersheds and all their tributaries: Gwynns Falls in Baltimore City and Baltimore County; and Jones Falls in Baltimore City and Baltimore County. MDE (C2) COMAR 26.17.02.07.

Select appropriate response:

- ☐ Project will be consistent with policy that Restricts Development-Related Runoff in the Gwynne Falls & Jones Falls Watersheds.
- ☒ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Clearinghouse Coordination

Letter to Maryland Clearinghouse (November 25, 2024)



DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY SOUTH POTOMAC
6509 SAMPSON ROAD, BLDG 101
DAHLGREN, VIRGINIA 22448

5090

Ser PRSI42TW/127

November 25, 2024

State Clearinghouse
Maryland Department of Planning
301 W. Preston Street, Suite 1101
Baltimore, MD 21201

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR CONTRUCTION OF AN
UNDERWATER TEST TANK FACILITY AT NAVAL SUPPORT FACILITY
INDIAN HEAD, MARYLAND

To Whom It May Concern:

The United States Navy (Navy) has prepared a Draft Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality (CEQ) and Navy procedures for implementing NEPA. The Draft EA evaluates the potential effects associated with constructing and operating a new aboveground underwater test tank (UTT) facility (the "Proposed Action") at Naval Support Facility (NSF) Indian Head in Indian Head, Maryland (Enclosure 1). The aboveground UTT would be used to develop new Explosive Ordnance Disposal (EOD) underwater technologies and energetic systems for Navy EOD divers.

The purpose of the Proposed Action is to provide the facilities to develop new underwater technologies and energetic systems for Navy EOD divers. The action is needed to advance the tactics and technologies that assist Navy personnel in clearing underwater hazards. The technologies and systems developed through research, development, test, and evaluation (RDT&E) work at this facility would aid in the protection of the warfighter. Navy EOD personnel handle chemical, biological, and radiological threats while performing duties such as detonating and demolishing hazardous munitions, neutralizing various ordnance, remotely disabling unsafe ordnance, and clearing waterways of mines in support of ships and submarines.

The UTT facility would include the aboveground UTT; a built-up shed; control room; concrete pads; and associated utilities, storm water management structures, pavement, and driveways/parking areas. A containment dike would be installed around the UTT and tree clearing of 50 feet around the facilities would be required for a firebreak. Concrete pads would be installed for the UTT, wastewater tank, built-up shed, and control room.

The Navy is considering two alternative locations to construct the aboveground UTT facility, both on the western side of Stump Neck Annex. The Navy also evaluated a No Action Alternative.

Under Alternative 1 (Enclosure 2), the Proposed Action would be constructed at the corner of Lewis Road and Archer Avenue. As the site is forested, it would be cleared and graded to accommodate development resulting in approximately 43,560 square feet (sq ft) (1 acre) of earth disturbance and 39,006 sq ft (0.9 acres) of tree removal. Utilities would be extended to connect with existing infrastructure adjacent to the site. The construction would result in approximately 13,068 sq ft (0.3 acres) of new impervious surface for the access road, concrete pads, parking area, and containment dike. The UTT facility would comply with explosive safety siting requirements.

With Alternative 2 (Enclosure 3), the Proposed Action would be constructed at Stump Neck Annex off Archer Avenue. At this location, the site would be graded to accommodate development and the existing forested area cleared. This would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal. New infrastructure would be installed and connected to the existing infrastructure adjacent to Archer Avenue near the proposed site entrance. The existing gravel drive would accommodate construction later be paved when the facility is complete. In addition, a paved parking lot would be constructed and an access control gate by Archer Road would be installed. The size of the facilities would be the same as described in the Proposed Action and under Alternative 1. Alternative 2 would comply with explosive safety siting requirements.

The Alternative 2 site is located primarily within the 100-year floodplain and partially within the 500-year floodplain. In accordance with Executive Order (EO) 11988, *Floodplain Management* and EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholders*, federal agencies must notify the public and solicit comments on actions impacting floodplains. Furthermore, federal agencies must implement more rigid floodplain definitions for planning purposes, either using the 500-year floodplain for facility planning or elevated floodplain contours 2–3 feet above base flood elevation projections. Under Alternative 2, flood risks would be mitigated by constructing the UTT facility and any flood-susceptible utilities at a minimum of 3 feet above the 100-year flood level, or a waiver would be sought to comply with EO 11988. If the Navy finds that there is no practicable alternative to constructing the Proposed Action within the floodplain, a Finding of No Practicable Alternative (FONPA) would be prepared with the Final EA.

Under the No Action Alternative, the Navy would not construct the UTT facility. The Navy's ability to develop new EOD underwater technologies and energetic systems would be limited, reducing the Navy's capability to address emerging threats for their EOD divers.

As part of the EA process, the Navy respectfully submits the Draft EA for distribution through the Maryland State Clearinghouse for coordinated review and comment to the following agencies:

- Maryland Department of Planning

- Maryland Department of the Environment
- Maryland Department of Natural Resources
- Maryland Department of Transportation
- Maryland Historical Trust
- Charles County
- Town of Indian Head

The Navy invites consulting parties to review the Draft EA, which is available for a 30-day review period online at: <https://ndw.cnrc.navy.mil/nsfihtankea>. Comments on the Draft EA may be submitted via email to NAVFACWashNEPA1@navy.mil, or via U.S. mail to NAVFAC Washington, ATTN: Ms. Calle Biles, 1314 Harwood Street SE, Building 212, Washington Navy Yard, DC 20374. Comments must be emailed or postmarked no later than 11:59 pm EST on January 10, 2025 to be considered in Final EA.

The Navy will hold an open house public meeting on the Draft EA on Wednesday, December 18, 2024, from 6:00 to 8:30 p.m. at the Velocity Center (4465 Indian Head Hwy, Indian Head, MD 20640). The purpose of this meeting is to inform the public and other stakeholders about the Proposed Action, the alternatives and analysis within the Draft EA, to answer questions, and to solicit public comments.

If you have any questions or comments, or need additional information, please contact Ms. Calle Biles at NAVFACWashNEPA1@navy.mil.

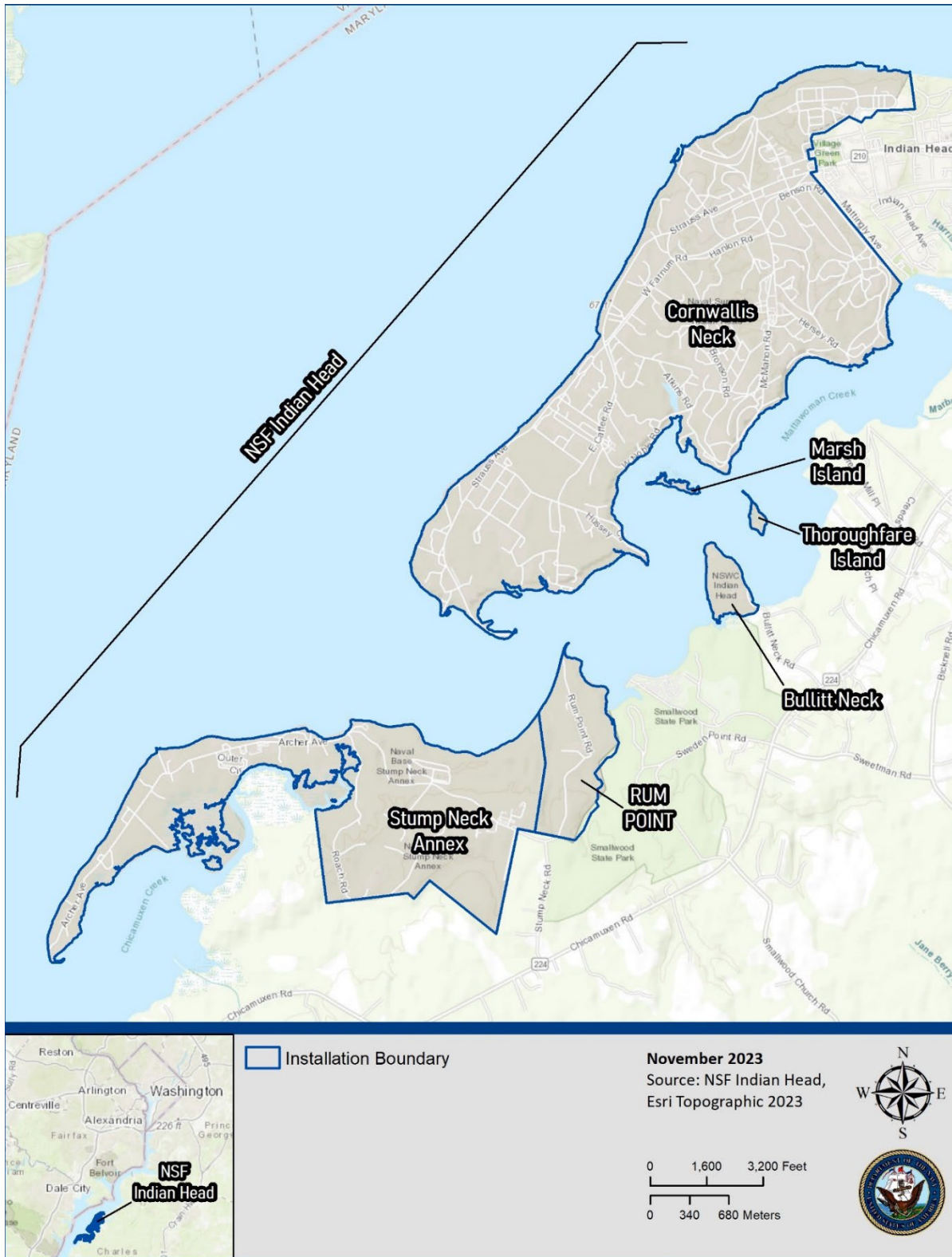
Sincerely,

J. R. TROCCHIO (Acting)
By direction

Enclosures: 1. Location of NSF Indian Head
2. Alternative 1 for Proposed Underwater Test Tank Facility on NSF Indian Head
3. Alternative 2 for Proposed Underwater Test Tank Facility on NSF Indian Head

Copy to: C. Biles (NAVFACWASH)

Unique ID# EAXX-007-17-USN-1727782357



Location map of NSF Indian Head, Indian Head, Maryland

Enclosure (1)



Alternative 1 for Proposed Underwater Test Tank Facility on NSF Indian Head

Enclosure (2)



Alternative 2 for Proposed Underwater Test Tank Facility on NSF Indian Head

Enclosure (3)

National Historic Preservation Act Coordination

Letter to Delaware Tribe of Indians (November 25, 2024)



DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY SOUTH POTOMAC
6509 SAMPSON ROAD, BLDG 101
DAHLGREN, VIRGINIA 22448

5090
Ser PRSI42TW/xxx
November 25, 2024

Susan Bachor
Tribal Historical Preservation Officer
Delaware Tribe of Indians
5100 Tuxedo Boulevard
Bartlesville, OK 74006

Dear Ms. Bachor:

The United States Navy (Navy) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act to evaluate potential environmental impacts associated with the construction of an Underwater Test Tank (UTT) facility (the "Proposed Action") at Naval Support Facility (NSF) Indian Head, Charles County, Maryland (Enclosure 1). In addition, per Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 CFR Part 800, Protection of Historic Properties, the Navy is engaging early with tribal governments as it formulates the Proposed Action. The NHPA requires that Federal agencies consult with tribes when an agency action might affect historic properties of religious and cultural significance to the tribes. The Navy requests your assistance in identifying such properties within the Proposed Action's areas of potential affect (APEs) that are of significance to the Delaware Tribe of Indians. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural properties and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

The Proposed Action would construct the UTT facility at one of two alternative locations within NSF Indian Head. The purpose of the Proposed Action is to facilitate the development of new underwater technologies and energetic systems for Navy Explosive Ordnance Disposal (EOD) divers. The action is needed to develop advanced tactics and technologies for clearing underwater hazards. The facility would include the aboveground UTT; a built-up shed; control room; concrete pads; and associated utilities, storm water management structures, pavement, and driveways/parking areas. A containment dike would be installed around the UTT facility, and tree clearing of 50 feet around the facilities would be required for a firebreak. Concrete pads would be installed for the UTT, wastewater tank, built-up shed, and control room.

Under Alternative 1 (Enclosure 2), the Proposed Action would be constructed at the corner of Lewis Road and Archer Avenue. As the site is forested, it would be cleared and graded to accommodate development resulting in approximately 43,560 square feet (sq ft) (1 acre) of earth disturbance and 39,006 sq ft (0.9 acres) of tree removal. Utilities would be extended to connect with existing infrastructure adjacent to the site.

With Alternative 2 (Enclosure 3), the Proposed Action would be constructed at Stump Neck Annex off Archer Avenue. At this location, the site would be graded to accommodate development and the existing forested area cleared. This would include approximately 43,560 sq ft (1 acre) of earth disturbance and 34,394 sq ft (0.79 acres) of tree removal. New infrastructure

would be installed and connected to the existing infrastructure adjacent to Archer Avenue near the proposed site entrance.

The Area of Potential Effect (APE) for this Proposed Action is defined as the entire project area for each alternative location, the portions of Stump Neck Annex that would undergo ground disturbance, and all areas from which the proposed construction would be visible. For this Proposed Action, the Navy determined that the APE for archaeological resources encompasses the area that would be subject to ground disturbance, including utility trenching, road improvements, stormwater management facilities, and laydown areas.

The archaeological APE consists of the limits of disturbance for Alternative 1 and Alternative 2. The APE for aboveground resources includes an area defined as the entire project area for both alternative locations with a buffer to include visual effects. The APE for Alternatives 1 and 2 generally includes a 400-foot buffer around aboveground resources (Enclosures 2 and 3). All APEs are within the Explosive Ordnance Disposal Historic Area as part of the Naval Ordnance Station Indian Head Historic District.

Alternative 1: Stump Neck Annex was previously surveyed for archaeological resources. No archaeological sites were identified within or immediately adjacent to the Alternative 1 areas of ground disturbance. The entire installation is considered a historic district referred to as the Naval Ordnance Station Indian Head. Stump Neck Annex is also within the Explosive Ordnance Disposal Historic Area. One contributing architectural resource is within the APE—Building 2076, Diving Support Building along with three structures that are unevaluated: Buildings 2100, 2106, and 2121.

Alternative 2: A small portion of the archaeological APE for Alternative 2 is located within archaeological site 18CH388. Previous surveys determined the eastern portion of 18CH388, which is located on the opposite side of Archer Avenue from Alternative 2, is eligible for the National Register of Historic Places (NRHP) and includes elements from the Archaic through Contact periods. The portion of 18CH388 south of Archer and within the APE for Alternative 2 is a small area near the proposed entrance on Archer Avenue to the UTT facility. This area has been previously disturbed from construction of the existing gravel road and water management features.

In addition, the 1998 archaeological investigations of the Alternative 2 area identified no sites or features within the proposed limits of disturbance for the UTT facility. Utility lines would be installed underground from Archer Avenue extending along the existing gravel road to the proposed facility structures. The remainder of the Proposed Action at Alternative 2 is outside 18CH388 and located in an area the Navy utilized for RDT&E activities from 1957 through the mid-1960s. The 1957 historic aerials show this area had several structures, radio towers, a blast pond, and dirt/gravel drives providing access from Archer Avenue. To minimize effects on 18CH388, the Navy would utilize the existing gravel road from Archer Avenue to the site. No contributing architectural resources were identified within or adjacent to the Alternative 2 APE.

Please respond whether you will be providing information and/or would like to consult on this Proposed Action. Your choice applies only to providing information and consultations under the NHPA. It will not affect the handling or disposition of human remains, funerary

objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition. Please address your response to the address below:

Director, Environmental Division
Department of Navy, PWD South Potomac
3972 Ward Road, Suite 101
Indian Head, Maryland 20640-5157

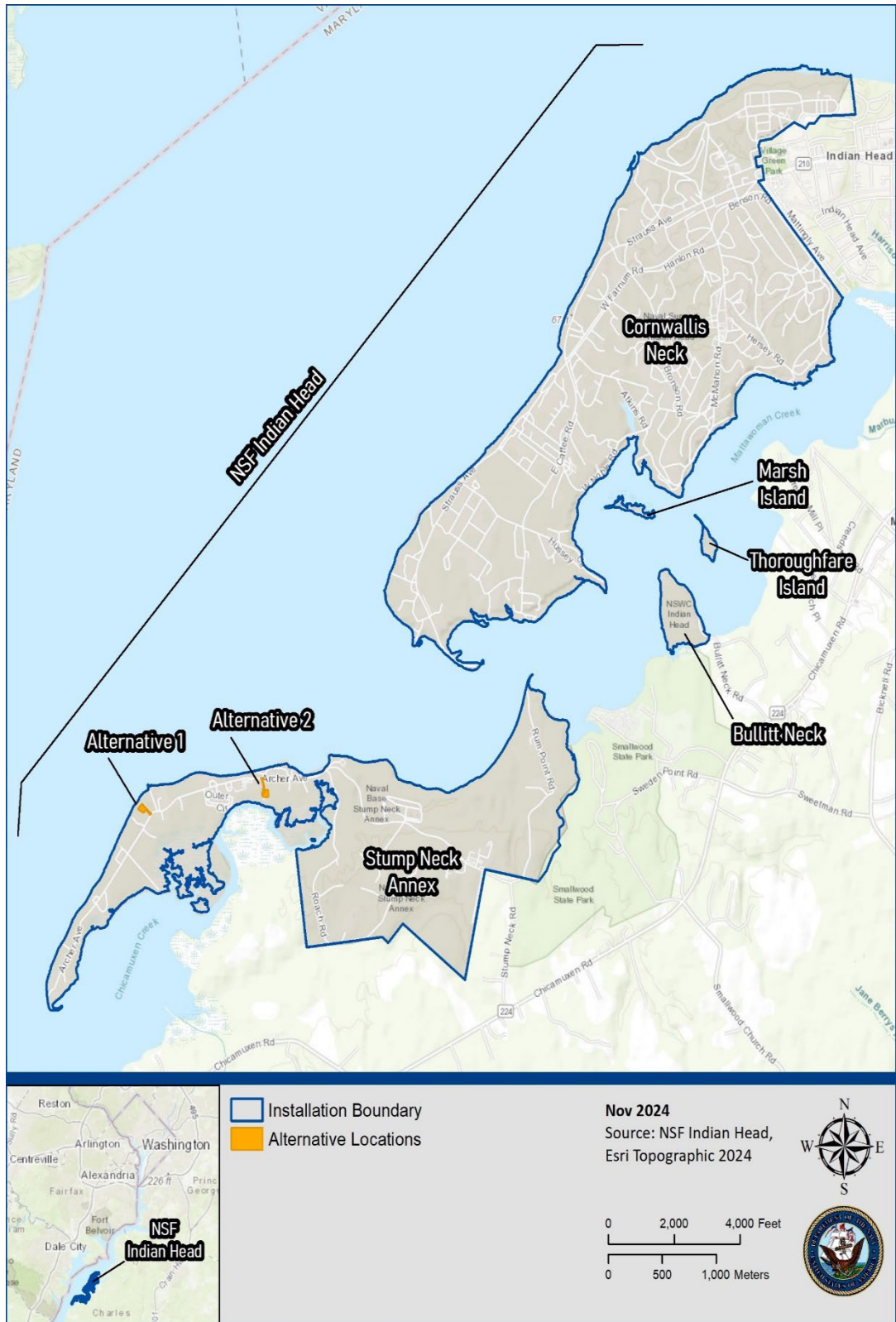
Thank you for your consideration of this matter. If you have any questions concerning this request, please contact Mr. Thomas Wright by telephone at (540) 538-6134 or by e-mail at thomas.a.wright9.civ@us.navy.mil.

Sincerely,

J. R. TOWNSEND

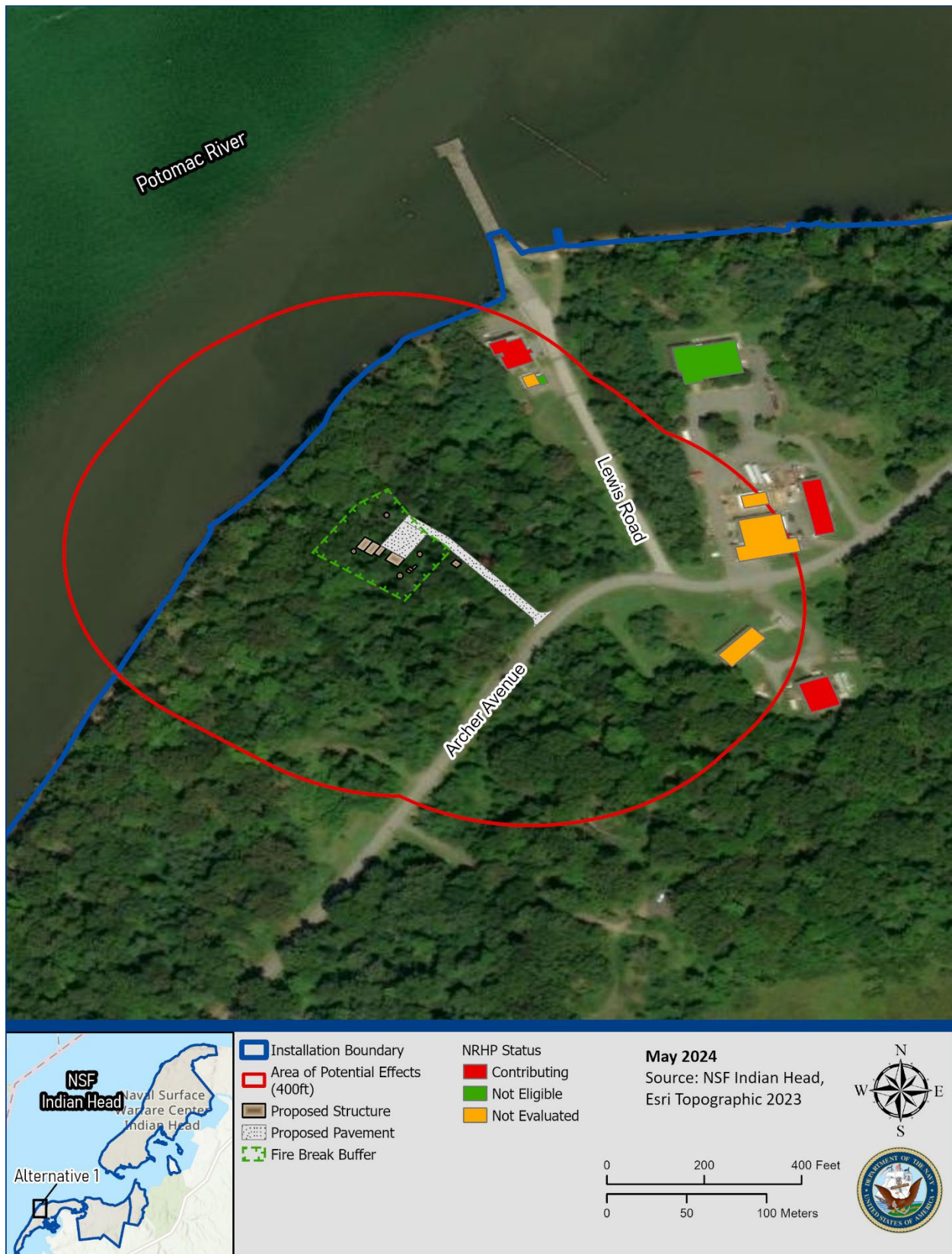
Enclosure: 1. Location Map of NSF Indian Head, Indian Head, Maryland
2. Area of Potential Effects for Alternative 1
3. Area of Potential Effects for Alternative 2
4. Archaeological Site 18CH388 **[REDACTED]**

Copy to: J. Darsie (NAVFACWASH)
N. Tompkins-Flagg (NAVFACWASH)



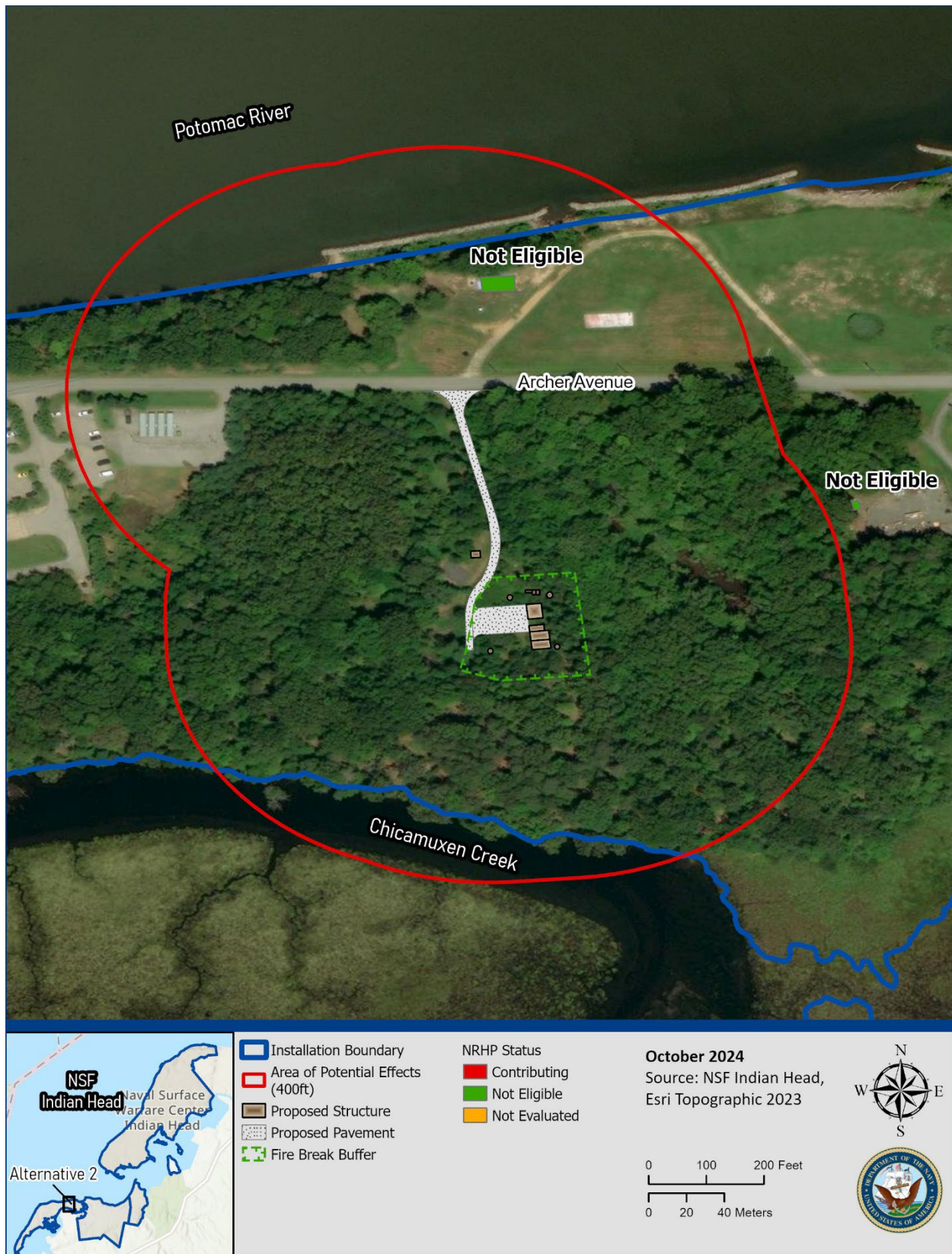
Location Map of NSF Indian Head, Indian Head, Maryland

Enclosure (1)



Area of Potential Effects for Alternative 1

Enclosure (2)



Area of Potential Effects for Alternative 2

Enclosure (3)

[REDACTED]

Alternative 2 Archaeological Site 18CH388

Enclosure 4

Letter to Delaware Nation (November 25, 2024)



DEPARTMENT OF THE NAVY
NAVAL SUPPORT ACTIVITY SOUTH POTOMAC
6509 SAMPSON ROAD, BLDG 101
DAHLGREN, VIRGINIA 22448

5090
Ser PRSI42TW/123
November 25, 2024

Katelyn Lucas
Tribal Historical Preservation Officer
Delaware Nation
PO Box 825
Anadarko, OK 73005

Dear Ms. Lucas:

The United States Navy (Navy) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act to evaluate potential environmental impacts associated with the construction of an Underwater Test Tank (UTT) facility (the "Proposed Action") at Naval Support Facility (NSF) Indian Head, Charles County, Maryland (Enclosure 1). In addition, per Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 CFR Part 800, Protection of Historic Properties, the Navy is engaging early with tribal governments as it formulates the Proposed Action. The NHPA requires that Federal agencies consult with tribes when an agency action might affect historic properties of religious and cultural significance to the tribes. The Navy requests your assistance in identifying such properties within the Proposed Action's areas of potential affect (APEs) that are of significance to the Delaware Nation. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural properties and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

The Proposed Action would construct the UTT facility at one of two alternative locations within NSF Indian Head. The purpose of the Proposed Action is to facilitate the development of new underwater technologies and energetic systems for Navy Explosive Ordnance Disposal (EOD) divers. The action is needed to develop advanced tactics and technologies for clearing underwater hazards. The facility would include the aboveground UTT; a built-up shed; control room; concrete pads; and associated utilities, storm water management structures, pavement, and driveways/parking areas. A containment dike would be installed around the UTT facility, and tree clearing of 50 feet around the facilities would be required for a firebreak. Concrete pads would be installed for the UTT, wastewater tank, built-up shed, and control room.

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Please respond whether you will be providing information and/or would like to consult on this Proposed Action. Your choice applies only to providing information and consultations

under the NHPA. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition. Please address your response to the address below:

Director, Environmental Division
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3972 Ward Road, Suite 101
Indian Head, Maryland 20640-5157

Thank you for your consideration of this matter. If you have any questions concerning this request, please contact Mr. Thomas Wright by telephone at (540) 538-6134 or by e-mail at thomas.a.wright9.civ@us.navy.mil.

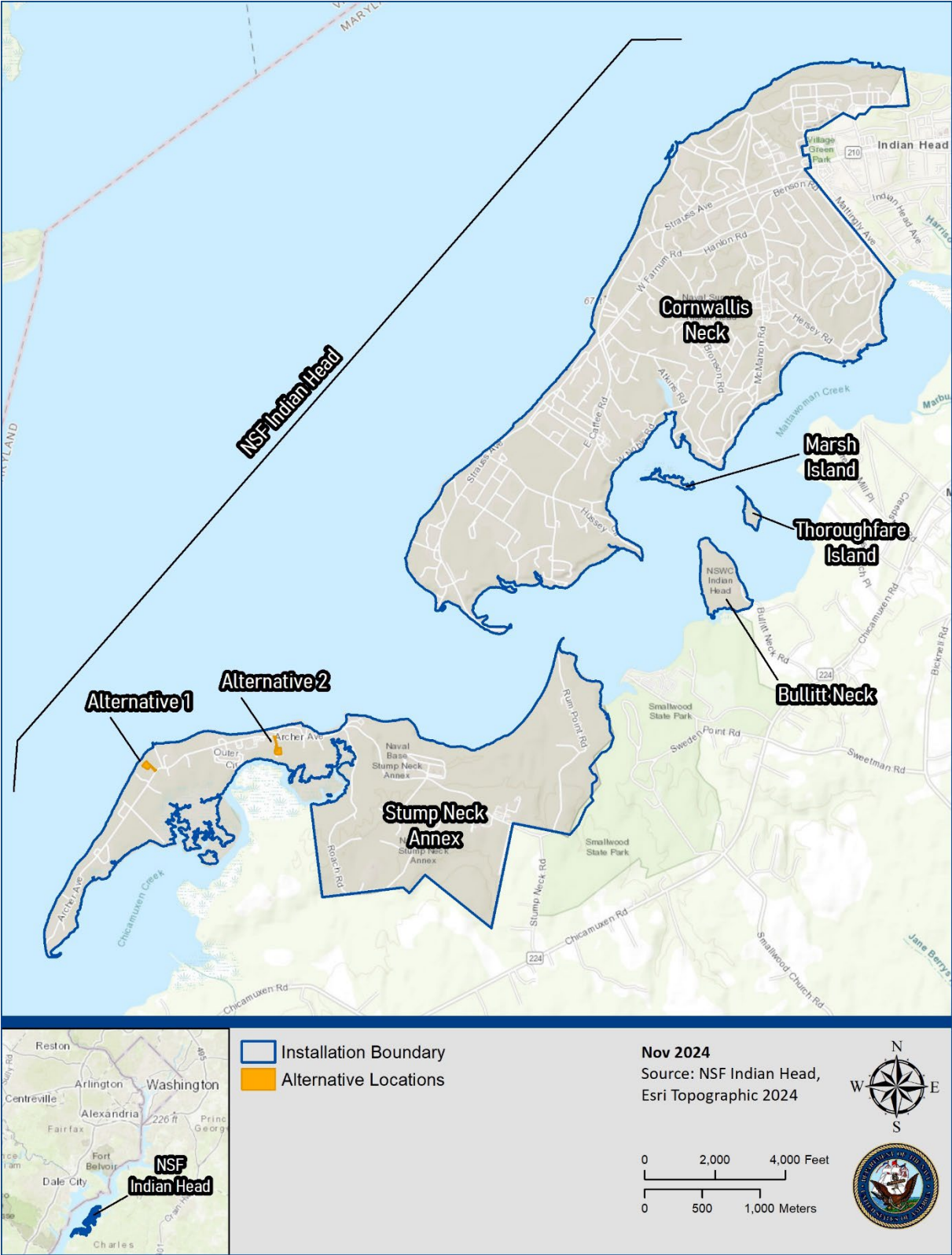
Sincerely,

J. R. TOWNSEND

Enclosure: 1. Location Map of NSF Indian Head, Indian Head, Maryland
2. Area of Potential Effects for Alternative 1
3. Area of Potential Effects for Alternative 2
4. Alternative 2 Archaeological Resources **[REDACTED]**

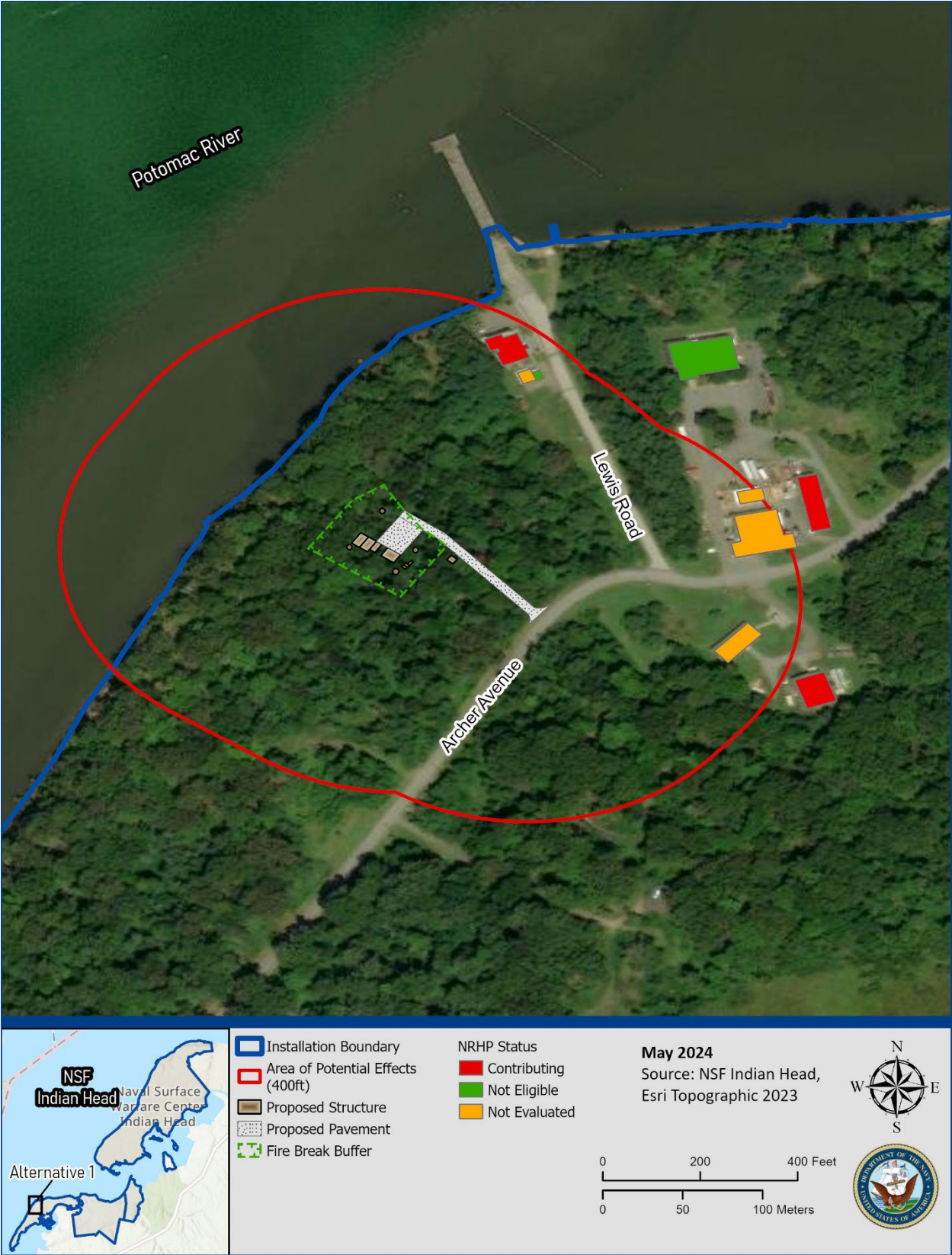
Unique ID: EAXX-007-17-USN-1727782357

Copy to: C. Biles (NAVFACWASH)
J. Darsie (NAVFACWASH)



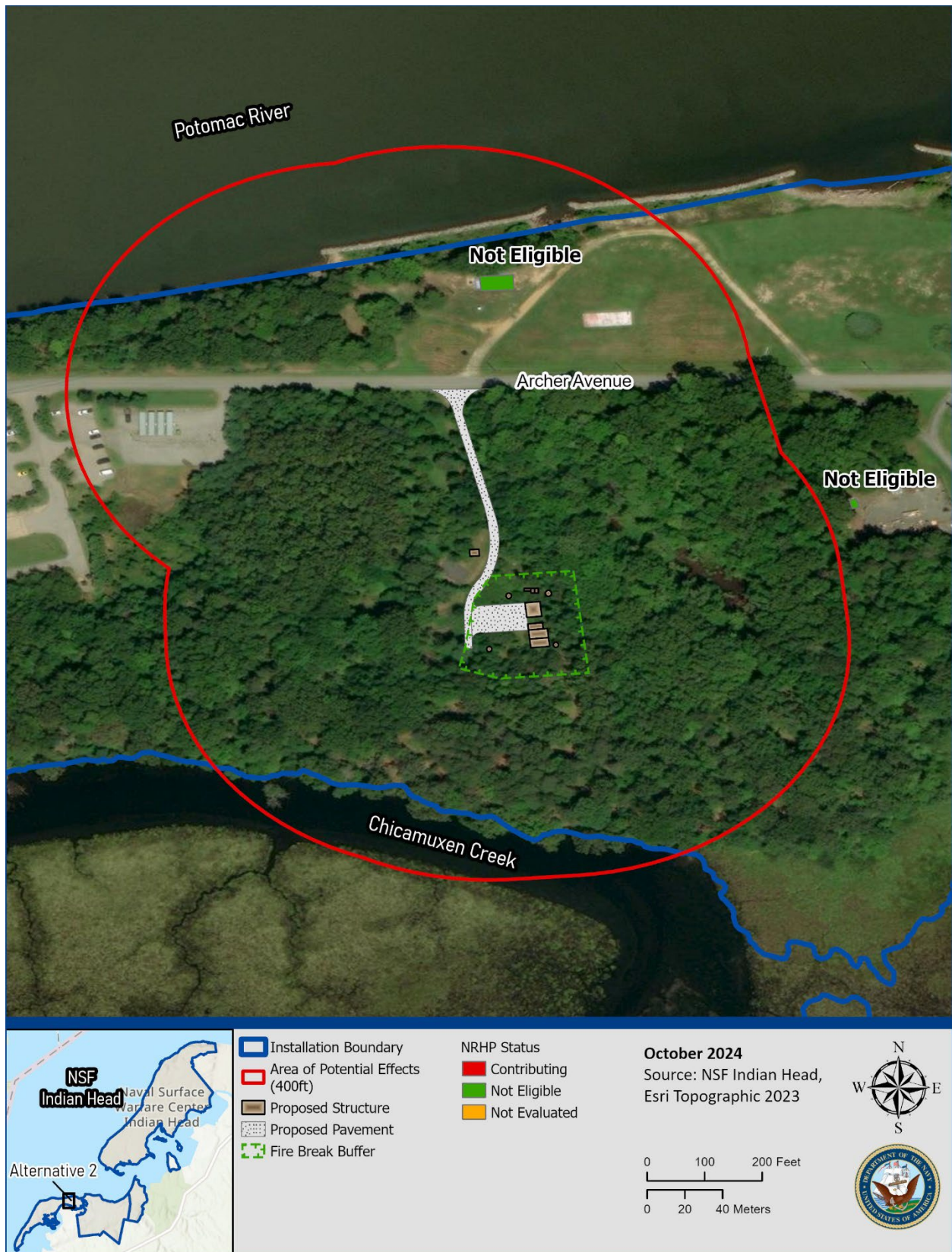
Location Map of NSF Indian Head, Indian Head, Maryland

Enclosure (1)



Area of Potential Effects for Alternative 1

Enclosure (2)



Area of Potential Effects for Alternative 2

Enclosure (3)

[REDACTED]

Alternative 2 Archaeological Resources (18CH388)

Enclosure (4)

1

Appendix C General Conformity Applicability Analysis

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform a net change in emissions analysis to assess the potential air quality impact/s associated with the action. The analysis was performed in accordance with the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; the *Environmental Impact Analysis Process* (EIAP, 32 CFR 989); the *General Conformity Rule* (GCR, 40 CFR 93 Subpart B); and the *USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide*. This report provides a summary of the ACAM analysis.

Report generated with ACAM version: 5.0.23a

a. Action Location:

Base: NSF Indian Head

State: Maryland

County(s): Charles

Regulatory Area(s): Southern Maryland Quality Control Region

b. Action Title: Underwater Test Tank Facility at NSF Indian Head

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2025

e. Action Description:

The Proposed Action would include the construction and operation of an aboveground UTT facility to conduct controlled underwater explosions of up to 500 grams (equal to 1.1 pounds) Net Explosive Weight (NEW) of Trinitrotoluene (TNT) equivalent explosives.

The UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy EOD divers, such as newly developed disruptors and sensors and methods of addressing emerging threats. The facility would include an aboveground UTT; a build-up shed; a control room all resting on concrete pads; and associated utilities, wastewater holding tank, stormwater management structures, pavement and driveways/parking areas. The UTT facility would include a metal canopy with an overhead crane, splash guards, and a containment dike. A clearing of 50 feet around all the facilities would be required for a fire break, which would consist of maintained grass. Personnel and traffic would not increase as a result of the Proposed Action.

The UTT would be approximately 20-feet long by 8-feet wide by 10 feet tall on a concrete pad 20 feet by 30 feet (totaling 600 square feet (sq ft)). It would be designed to accommodate a maximum of 500 grams NEW of TNT equivalent explosives and would be structurally reinforced both externally and along the interior walls. Plates would be installed to extend the exterior walls up the tank to form a splashguard. Additional blast analysis could be conducted to determine supplementary splash height requirements. The UTT would consist of water filtration, instrumentation-ready portholes, a waste containment area, and lightning protection systems. A 15,000-gallon wastewater holding tank would be sited adjacent to the UTT.

A built-up shed adjacent to the UTT would serve as a separate staging area. The shed would be a small, open-sided structure approximately ten feet tall. Fire suppression systems would not be required.

The control room would serve as the site for range operations. The structure would have factory-installed heating, ventilation, air conditioning, and plumbing and would connect to existing utilities with extensions, as necessary.

Concrete pads would be provided for the UTT, wastewater tank, build-up shed, and control room. This would involve forming and pouring four new concrete pads: 20 feet by 30 feet for the UTT, 16 feet in diameter for the wastewater tank, 20 feet by 10 feet for the built-up shed, and 25 feet by 21 feet for the control room.

As appropriate, the proposed facility would incorporate antiterrorism features for force protection measures such as mass notification systems, emergency shutoffs for ventilation systems, laminated windows, blast-resistant window and door frames, and emergency lighting and signage. The Proposed Action would also include a sanitary lift station; stormwater management facilities; and necessary utilities, pavement, driveways/parking areas.

AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF CONFORMITY ANALYSIS (ROCA)

f. Point of Contact:

Name: Kole Dufore
Title: Conservation Planner
Organization: Marstel-Day
Email: kdufore@marstel-day.com
Phone Number: 706-361-5068

2. Analysis: Total reasonably foreseeable net change in direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" (highest annual emissions) and "steady state" (no net gain/loss in emission stabilized and the action is fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

All emissions estimates were derived from various sources using the methods, algorithms, and emission factors from the most current *Air Emissions Guide for Air Force Stationary Sources*, *Air Emissions Guide for Air Force Mobile Sources*, and/or *Air Emissions Guide for Air Force Transitory Sources*. For greater details of this analysis, refer to the Detail ACAM Report.

_____ applicable
 X not applicable

Conformity Analysis Summary:

2025

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Washington, DC-MD-VA			
VOC	0.049	50	No
NOx	0.409	100	No
CO	0.541		
SOx	0.001		
PM 10	0.964		
PM 2.5	0.016		
Pb	0.000		
NH3	0.001		

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Washington, DC-MD-VA			
VOC	0.000	50	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		

The Criteria Pollutants (or their precursors) with a General Conformity threshold listed in the table above are pollutants within one or more designated nonattainment or maintenance area/s for the associated National Ambient

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

Air Quality Standard (NAAQS). These pollutants are driving this GCR Applicability Analysis. Pollutants exceeding the GCR thresholds must be further evaluated potentially through a GCR Determination.

The pollutants without a General Conformity threshold are pollutants only within areas designated attainment for the associated NAAQS. These pollutants have an insignificance indicator for VOC, NO_x, CO, SO_x, PM 10, PM 2.5, and NH₃ of 250 ton/yr (Prevention of Significant Deterioration major source threshold) and 25 ton/yr for Pb (GCR de minimis value). Pollutants below their insignificance indicators are at rates so insignificant that they will not cause or contribute to an exceedance of one or more NAAQSs. These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Refer to the *Level II, Air Quality Quantitative Assessment Insignificance Indicators* for further details.

None of the annual net change in estimated emissions associated with this action are above the GCR threshold values established at 40 CFR 93.153 (b); therefore, the proposed Action has an insignificant impact on Air Quality and a General Conformity Determination is not applicable.

Kole Dufore, Conservation Planner

May 06 2024

Name, Title

Date

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform a net change in emissions analysis to assess the potential air quality impact/s associated with the action. The analysis was performed in accordance with the Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*; the *Environmental Impact Analysis Process* (EIAP, 32 CFR 989); the *General Conformity Rule* (GCR, 40 CFR 93 Subpart B); and the *USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide*. This report provides a summary of the ACAM analysis.

Report generated with ACAM version: 5.0.23a

a. Action Location:

Base: NSF Indian Head

State: Maryland

County(s): Charles

Regulatory Area(s): Southern Maryland Air Quality Control District

b. Action Title: Underwater Test Tank Facility at NSF Indian Head

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2025

e. Action Description:

The Proposed Action would include the construction and operation of an aboveground UTT facility to conduct controlled underwater explosions of up to 500 grams (equal to 1.1 pounds) Net Explosive Weight (NEW) of Trinitrotoluene (TNT) equivalent explosives.

The UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy EOD divers, such as newly developed disruptors and sensors and methods of addressing emerging threats. The facility would include an aboveground UTT; a build-up shed; a control room all resting on concrete pads; and associated utilities, wastewater holding tank, stormwater management structures, pavement and driveways/parking areas. The UTT facility would include a metal canopy with an overhead crane, splash guards, and a containment dike. A clearing of 50 feet around all the facilities would be required for a fire break, which would consist of maintained grass. Personnel and traffic would not increase as a result of the Proposed Action.

The UTT would be approximately 20-feet long by 8-feet wide by 10 feet tall on a concrete pad 20 feet by 30 feet (totaling 600 square feet (sq ft)). It would be designed to accommodate a maximum of 500 grams NEW of TNT equivalent explosives and would be structurally reinforced both externally and along the interior walls. Plates would be installed to extend the exterior walls up the tank to form a splashguard. Additional blast analysis could be conducted to determine supplementary splash height requirements. The UTT would consist of water filtration, instrumentation-ready portholes, a waste containment area, and lightning protection systems. A 15,000-gallon wastewater holding tank would be sited adjacent to the UTT.

A built-up shed adjacent to the UTT would serve as a separate staging area. The shed would be a small, open-sided structure approximately ten feet tall. Fire suppression systems would not be required.

The control room would serve as the site for range operations. The structure would have factory-installed heating, ventilation, air conditioning, and plumbing and would connect to existing utilities with extensions, as necessary.

Concrete pads would be provided for the UTT, wastewater tank, build-up shed, and control room. This would involve forming and pouring four new concrete pads: 20 feet by 30 feet for the UTT, 16 feet in diameter for the wastewater tank, 20 feet by 10 feet for the built-up shed, and 25 feet by 21 feet for the control room.

As appropriate, the proposed facility would incorporate antiterrorism features for force protection measures such as mass notification systems, emergency shutoffs for ventilation systems, laminated windows, blast-resistant window and door frames, and emergency lighting and signage. The Proposed Action would also include a sanitary lift station; stormwater management facilities; and necessary utilities, pavement, driveways/parking areas.

AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF CONFORMITY ANALYSIS (ROCA)

f. Point of Contact:

Name: Kole Dufore
Title: Conservation Planner
Organization: Marstel-Day
Email: kdufore@marstel-day.com
Phone Number: 706-361-5068

2. Analysis: Total reasonably foreseeable net change in direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" (highest annual emissions) and "steady state" (no net gain/loss in emission stabilized and the action is fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

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_____ applicable
 X not applicable

Conformity Analysis Summary:

2025

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Southern Maryland Air Quality Control District			
VOC	0.043	50	No
NOx	0.363	100	No
CO	0.471		
SOx	0.001		
PM 10	0.986		
PM 2.5	0.014		
Pb	0.000		
NH3	0.001		

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Southern Maryland Air Quality Control District			
VOC	0.000	50	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		

The Criteria Pollutants (or their precursors) with a General Conformity threshold listed in the table above are pollutants within one or more designated nonattainment or maintenance area/s for the associated National Ambient

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

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Kole Dufore, Conservation Planner

Mar 15 2024

Name, Title

Date

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: NSF Indian Head

State: Maryland

County(s): Charles

Regulatory Area(s): Southern Maryland Quality Control Region

- Action Title: Underwater Test Tank Facility at NSF Indian Head

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2025

- Action Purpose and Need:

The purpose of the Proposed Action is to provide the facilities in which to develop new EOD underwater technologies and energetic systems for Navy EOD divers, such as newly developed disruptors and sensors. The need for the Proposed Action is to develop advanced tactics and technologies that assist Navy personnel in clearing underwater hazards. The technologies and systems developed through RDT&E work at this facility would expand and support the Navy EOD program and aid in the protection of the warfighter in theater. Navy EOD personnel handle chemical, biological, and radiological threats while performing duties such as detonating and demolishing hazardous munitions; neutralizing various ordnance; remotely disabling unsafe ordnance; and clearing waterways of mines in support of ships and submarines.

- Action Description:

The Proposed Action would include the construction and operation of an aboveground UTT facility to conduct controlled underwater explosions of up to 500 grams (equal to 1.1 pounds) Net Explosive Weight (NEW) of Trinitrotoluene (TNT) equivalent explosives.

The UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy EOD divers, such as newly developed disruptors and sensors and methods of addressing emerging threats. The facility would include an aboveground UTT; a build-up shed; a control room all resting on concrete pads; and associated utilities, wastewater holding tank, stormwater management structures, pavement and driveways/parking areas. The UTT facility would include a metal canopy with an overhead crane, splash guards, and a containment dike. A clearing of 50 feet around all the facilities would be required for a fire break, which would consist of maintained grass. Personnel and traffic would not increase as a result of the Proposed Action.

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DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

include a sanitary lift station; stormwater management facilities; and necessary utilities, pavement, driveways/parking areas.

- Point of Contact

Name: Kole Dufore
Title: Conservation Planner
Organization: Marstel-Day
Email: kdufore@marstel-day.com
Phone Number: 706-361-5068

Report generated with ACAM version: 5.0.23a

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Alternative 1: Construct UTT at Lewis Road

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Charles
Regulatory Area(s): Southern Maryland Quality Control Region

- Activity Title: Alternative 1: Construct UTT at Lewis Road

- Activity Description:

Under Alternative 1, the Proposed Action would be implemented as discussed in Section 2.1, at Stump Neck Annex at the corner of Lewis Road and Archer Avenue (see Figure 2 1). At this location, the site would need to be graded to accommodate development and the forested area would be cleared. A paved access drive would be constructed off Archer Avenue. The construction of the new UTT facility would result in approximately 43,560 sq ft (1 acre) of earth disturbance, including utilities, laydown areas, access road, parking area, and concrete building pads. This would result in approximately 13,068 sq ft (0.3 acres) of new impervious surface for the access road, concrete pads, parking area, and containment dike. A 50-foot fire-break buffer is required around the proposed facilities. Approximately 39,006 sq ft (0.9 acres) of trees would be removed.

The site is near existing utilities, but infrastructure would need to be extended to the proposed facilities. Utility work would include water, wastewater, electrical, and communications. Potable water utilities and fixtures, a sump pump, and a water meter would be installed and connected to the underground potable water line. New work would include an underground electrical service connection and support for a distribution panel and surge protectors. New powerlines would be installed underground to avoid bald eagle and other raptor mortalities; this would assist with NSF Indian Head Bald and Golden Eagle Protection Act (BGEPA) 5-year Programmatic Permit compliance. To provide lightning protection, wooden or metal lightning masts would be placed around the perimeter of the site. A new fire hydrant would be tied into the existing potable water main to provide fire suppression water to the site. The built-up shed would not have fire protection because this facility would consist of a floor (slab) and a roof and is not considered a building.

At this location, the UTT facility would be sited and designed to fit into a relatively narrow space. Alternative 1 would be adjacent to the Potomac River, which is used by the public for boating and transportation. As

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previously discussed, the UTT facility would comply with explosive siting requirements including explosive safety arcs.

Alternative 1 is in an area with the potential for Unexploded Ordnance (UXO) due to past operations; therefore, an explosive safety submission would be prepared and, once approved, adhered to during construction. UXO Support would be needed throughout the planning and construction process.

- Activity Start Date

Start Month: 1
Start Month: 2025

- Activity End Date

Indefinite: False
End Month: 7
End Month: 2025

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.049438
SO _x	0.000825
NO _x	0.408720
CO	0.540610

Pollutant	Total Emissions (TONs)
PM 10	0.963795
PM 2.5	0.015956
Pb	0.000000
NH ₃	0.001258

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH ₄	0.003729
N ₂ O	0.001634

Pollutant	Total Emissions (TONs)
CO ₂	94.511477
CO ₂ e	95.091548

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH ₄	0.003729
N ₂ O	0.001634

Pollutant	Total Emissions (TONs)
CO ₂	94.511477
CO ₂ e	95.091548

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
Start Quarter: 1
Start Year: 2025

- Phase Duration

Number of Month: 1
Number of Days: 0

2.1.2 Demolition Phase Assumptions

- General Demolition Information

Area of trees to be removed (ft²): 39,006

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

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- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Concrete/Industrial Saws Composite [HP: 33] [LF: 0.73]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.43930	0.00743	3.63468	4.34820	0.10060	0.09255
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.37086	0.00491	3.50629	2.90209	0.15396	0.14165
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gases Pollutant Emission Factors (g/hp-hour) (default)

Concrete/Industrial Saws Composite [HP: 33] [LF: 0.73]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02333	0.00467	575.01338	576.98668
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02159	0.00432	532.17175	533.99803
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488

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MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345
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- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO _{2e}
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM_{10FD} = (0.00042 * BA * BH) / 2000$$

PM_{10FD}: Fugitive Dust PM 10 Emissions (TONs)
 0.00042: Emission Factor (lb/ft³)
 BA: Area of Building (trees) to be demolished (ft²)
 BH: Height of Building to be demolished (ft)
 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
 NE: Number of Equipment
 WD: Number of Total Work Days (days)
 H: Hours Worked per Day (hours)
 HP: Equipment Horsepower
 LF: Equipment Load Factor
 EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
 0.002205: Conversion Factor grams to pounds
 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 BA: Area of Building being demolish (ft²)
 BH: Height of Building being demolish (ft)
 (1 / 27): Conversion Factor cubic feet to cubic yards (1 yd³ / 27 ft³)
 0.25: Volume reduction factor (material reduced by 75% to account for air space)
 HC: Average Hauling Truck Capacity (yd³)
 (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
 HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
 VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 0.002205: Conversion Factor grams to pounds
 EF_{POL}: Emission Factor for Pollutant (grams/mile)
 VM: Vehicle Exhaust On Road Vehicle Mixture (%)

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2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 2

Start Quarter: 1

Start Year: 2025

- Phase Duration

Number of Month: 1

Number of Days: 0

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 80525

Amount of Material to be Hauled On-Site (yd³): 50

Amount of Material to be Hauled Off-Site (yd³): 100

- Site Grading Default Settings

Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

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- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.33951	0.00490	2.85858	3.41896	0.15910	0.14637
Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.29762	0.00487	2.89075	3.51214	0.17229	0.15851
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.37086	0.00491	3.50629	2.90209	0.15396	0.14165
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02155	0.00431	531.19419	533.01712
Other Construction Equipment Composite [HP: 82] [LF: 0.42]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02141	0.00428	527.74261	529.55369
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02159	0.00432	532.17175	533.99803
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO ₂ e
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LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM_{10FD} = (20 * ACRE * WD) / 2000$$

PM_{10FD}: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

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WD: Number of Total Work Days (days)
 WT: Average Worker Round Trip Commute (mile)
 1.25: Conversion Factor Number of Construction Equipment to Number of Works
 NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL} : Vehicle Emissions (TONs)
 VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)
 0.002205: Conversion Factor grams to pounds
 EF_{POL} : Emission Factor for Pollutant (grams/mile)
 VM: Worker Trips On Road Vehicle Mixture (%)
 2000: Conversion Factor pounds to tons

2.3 Trenching/Excavating Phase

2.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

Start Month: 3
 Start Quarter: 1
 Start Year: 2025

- Phase Duration

Number of Month: 1
 Number of Days: 0

2.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft²): 4500
 Amount of Material to be Hauled On-Site (yd³): 0
 Amount of Material to be Hauled Off-Site (yd³): 0

- Trenching Default Settings

Default Settings Used: Yes
 Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)
 Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

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- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.3.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.40191	0.00542	3.44643	4.21104	0.10704	0.09848
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.49122	0.00542	3.71341	4.67487	0.13603	0.12515
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02382	0.00476	587.13772	589.15263
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02385	0.00477	588.02637	590.04433
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.3.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM_{10FD} = (20 * ACRE * WD) / 2000$$

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PM10_{FD}: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)
HC: Average Hauling Truck Capacity (yd³)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

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2.4 Building Construction Phase

2.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 4
Start Quarter: 1
Start Year: 2025

- Phase Duration

Number of Month: 3
Number of Days: 0

2.4.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft²): 1325
Height of Building (ft): 10
Number of Units: N/A

- Building Construction Default Settings

Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

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2.4.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.20113	0.00487	1.94968	1.66287	0.07909	0.07277
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.26944	0.00487	2.55142	3.59881	0.13498	0.12418
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02140	0.00428	527.58451	529.39505
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02138	0.00428	527.10822	528.91712
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.4.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

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LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft³ to trips (0.38 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds

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EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

2.5 Architectural Coatings Phase

2.5.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date

Start Month: 7

Start Quarter: 1

Start Year: 2025

- Phase Duration

Number of Month: 1

Number of Days: 0

2.5.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information

Building Category: Non-Residential

Total Square Footage (ft²): 146

Number of Units: N/A

- Architectural Coatings Default Settings

Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.5.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO _{2e}
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163

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HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.5.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

1: Conversion Factor man days to trips (1 trip / 1 man * day)

WT: Average Worker Round Trip Commute (mile)

PA: Paint Area (ft²)

800: Conversion Factor square feet to man days (1 ft² / 1 man * day)

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

VOC_{AC}: Architectural Coating VOC Emissions (TONs)

BA: Area of Building (ft²)

2.0: Conversion Factor total area to coated area (2.0 ft² coated area / total area)

0.0116: Emission Factor (lb/ft²)

2000: Conversion Factor pounds to tons

2.6 Paving Phase

2.6.1 Paving Phase Timeline Assumptions

- Phase Start Date

Start Month: 7

Start Quarter: 1

Start Year: 2025

- Phase Duration

Number of Month: 1

Number of Days: 0

2.6.2 Paving Phase Assumptions

- General Paving Information

Paving Area (ft²): 9604

- Paving Default Settings

Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

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Equipment Name	Number Of Equipment	Hours Per Day
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	7
Rollers Composite	1	7
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.6.3 Paving Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cement and Mortar Mixers Composite [HP: 10] [LF: 0.56]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.55317	0.00854	4.19957	3.25548	0.16367	0.15057
Pavers Composite [HP: 81] [LF: 0.42]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.24787	0.00486	2.64574	3.44523	0.13933	0.12819
Rollers Composite [HP: 36] [LF: 0.38]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.56682	0.00541	3.67816	4.11298	0.16639	0.15308
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cement and Mortar Mixers Composite [HP: 10] [LF: 0.56]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02313	0.00463	570.17504	572.13174
Pavers Composite [HP: 81] [LF: 0.42]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02136	0.00427	526.53742	528.34436
Rollers Composite [HP: 36] [LF: 0.38]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02381	0.00476	586.90234	588.91644
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173

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LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO _{2e}
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.6.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

PA: Paving Area (ft²)

0.25: Thickness of Paving Area (ft)

(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd³ / 27 ft³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

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- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL} : Vehicle Emissions (TONs)

VMT_{VE} : Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL} : Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_P = (2.62 * PA) / 43560 / 2000$$

VOC_P : Paving VOC Emissions (TONs)

2.62: Emission Factor (lb/acre)

PA: Paving Area (ft²)

43560: Conversion Factor square feet to acre (43560 ft² / acre)² / acre)

2000: Conversion Factor square pounds to TONs (2000 lb / TON)

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1. General Information

- Action Location

Base: NSF Indian Head

State: Maryland

County(s): Charles

Regulatory Area(s): Southern Maryland Air Quality Control District

- Action Title: Underwater Test Tank Facility at NSF Indian Head

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2025

- Action Purpose and Need:

The purpose of the Proposed Action is to provide the facilities in which to develop new EOD underwater technologies and energetic systems for Navy EOD divers, such as newly developed disruptors and sensors.

The need for the Proposed Action is to develop advanced tactics and technologies that assist Navy personnel in clearing underwater hazards. The technologies and systems developed through RDT&E work at this facility would expand and support the Navy EOD program and aid in the protection of the warfighter in theater. Navy EOD personnel handle chemical, biological, and radiological threats while performing duties such as detonating and demolishing hazardous munitions; neutralizing various ordnance; remotely disabling unsafe ordnance; and clearing waterways of mines in support of ships and submarines.

- Action Description:

The Proposed Action would include the construction and operation of an aboveground UTT facility to conduct controlled underwater explosions of up to 500 grams (equal to 1.1 pounds) Net Explosive Weight (NEW) of Trinitrotoluene (TNT) equivalent explosives.

The UTT would simulate necessary conditions to develop new underwater technologies and energetic systems for Navy EOD divers, such as newly developed disruptors and sensors and methods of addressing emerging threats. The facility would include an aboveground UTT; a build-up shed; a control room all resting on concrete pads; and associated utilities, wastewater holding tank, stormwater management structures, pavement and driveways/parking areas. The UTT facility would include a metal canopy with an overhead crane, splash guards, and a containment dike. A clearing of 50 feet around all the facilities would be required for a fire break, which would consist of maintained grass. Personnel and traffic would not increase as a result of the Proposed Action.

The UTT would be approximately 20-feet long by 8-feet wide by 10 feet tall on a concrete pad 20 feet by 30 feet (totaling 600 square feet (sq ft)). It would be designed to accommodate a maximum of 500 grams NEW of TNT equivalent explosives and would be structurally reinforced both externally and along the interior walls. Plates would be installed to extend the exterior walls up the tank to form a splashguard. Additional blast analysis could be conducted to determine supplementary splash height requirements. The UTT would consist of water filtration, instrumentation-ready portholes, a waste containment area, and lightning protection systems. A 15,000-gallon wastewater holding tank would be sited adjacent to the UTT.

A built-up shed adjacent to the UTT would serve as a separate staging area. The shed would be a small, open-sided structure approximately ten feet tall. Fire suppression systems would not be required.

The control room would serve as the site for range operations. The structure would have factory-installed heating, ventilation, air conditioning, and plumbing and would connect to existing utilities with extensions, as necessary.

Concrete pads would be provided for the UTT, wastewater tank, build-up shed, and control room. This would involve forming and pouring four new concrete pads: 20 feet by 30 feet for the UTT, 16 feet in diameter for the wastewater tank, 20 feet by 10 feet for the built-up shed, and 25 feet by 21 feet for the control room.

As appropriate, the proposed facility would incorporate antiterrorism features for force protection measures such as mass notification systems, emergency shutoffs for ventilation systems, laminated windows, blast-resistant window and door frames, and emergency lighting and signage. The Proposed Action would also

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include a sanitary lift station; stormwater management facilities; and necessary utilities, pavement, driveways/parking areas.

- Point of Contact

Name: Kole Dufore
Title: Conservation Planner
Organization: Marstel-Day
Email: kdufore@marstel-day.com
Phone Number: 706-361-5068

Report generated with ACAM version: 5.0.23a

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Alternative 2: Construct UTT at Archer Avenue

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Charles
Regulatory Area(s): Southern Maryland Air Quality Control District

- Activity Title: Alternative 2: Construct UTT at Archer Avenue

- Activity Description:

Under Alternative 2, the Proposed Action would be implemented as discussed in Section 2.1. Alternative 2 would be located off Archer Avenue as shown in Figure 2.2. The site is forested and would be cleared and graded to accommodate development. An existing gravel drive would be used for construction vehicles. This gravel drive would then be paved, with an extension to the UTT and control room. A new paved parking lot would also be constructed. An access control gate would be installed by Archer Avenue. The size of the facilities would be the same as described in the Proposed Action and under Alternative 1. The construction of the UTT facility would include a total of approximately 43,560 sq ft (1 acre) of earth disturbance and approximately 13,068 sq ft (0.3 acres) of new impervious surface area for the concrete pads, access road, parking, and containment dike. Approximately 34,394 sq ft (0.79 acres) of trees would be removed. Utilities such as water, wastewater, electrical, and communications would be installed at the proposed location and tied into existing utilities adjacent to the site. The closest power pole is adjacent to the main road next to the site entrance. To provide telecommunications, a 45-foot pole would be installed next to the power pole at the site entrance.

Alternative 2 is in an area with the potential for UXO due to past operations; therefore, an explosive safety plan submission would be prepared and once approved, adhered to during construction. UXO Support would be needed throughout the planning and construction process.

Alternative 2 would comply with explosive siting requirements including explosive safety arcs.

- Activity Start Date

Start Month: 1
Start Month: 2025

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- Activity End Date

Indefinite: False
End Month: 8
End Month: 2025

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.042777
SO _x	0.000729
NO _x	0.363318
CO	0.470517

Pollutant	Total Emissions (TONs)
PM 10	0.985509
PM 2.5	0.014055
Pb	0.000000
NH ₃	0.001128

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH ₄	0.003334
N ₂ O	0.001705

Pollutant	Total Emissions (TONs)
CO ₂	85.384669
CO ₂ e	85.976100

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH ₄	0.003334
N ₂ O	0.001705

Pollutant	Total Emissions (TONs)
CO ₂	85.384669
CO ₂ e	85.976100

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
Start Quarter: 1
Start Year: 2025

- Phase Duration

Number of Month: 1
Number of Days: 0

2.1.2 Demolition Phase Assumptions

- General Demolition Information

Area of trees to be removed (ft²): 34,394 sq ft

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- Vehicle Exhaust

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Average Hauling Truck Capacity (yd³): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Concrete/Industrial Saws Composite [HP: 33] [LF: 0.73]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.43930	0.00743	3.63468	4.34820	0.10060	0.09255
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.37086	0.00491	3.50629	2.90209	0.15396	0.14165
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Concrete/Industrial Saws Composite [HP: 33] [LF: 0.73]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02333	0.00467	575.01338	576.98668
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02159	0.00432	532.17175	533.99803
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765

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LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM_{10FD} = (0.00042 * BA * BH) / 2000$$

PM_{10FD}: Fugitive Dust PM 10 Emissions (TONs)

0.00042: Emission Factor (lb/ft³)

BA: Area of Building to be demolished (ft²)

BH: Height of Building to be demolished (ft)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

BA: Area of Building being demolish (ft²)

BH: Height of Building being demolish (ft)

(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd³ / 27 ft³)

0.25: Volume reduction factor (material reduced by 75% to account for air space)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

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1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL} : Vehicle Emissions (TONs)

VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL} : Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 2

Start Quarter: 1

Start Year: 2025

- Phase Duration

Number of Month: 1

Number of Days: 0

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 80525

Amount of Material to be Hauled On-Site (yd³): 50

Amount of Material to be Hauled Off-Site (yd³): 100

- Site Grading Default Settings

Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

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- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.33951	0.00490	2.85858	3.41896	0.15910	0.14637
Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.29762	0.00487	2.89075	3.51214	0.17229	0.15851
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.37086	0.00491	3.50629	2.90209	0.15396	0.14165
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02155	0.00431	531.19419	533.01712
Other Construction Equipment Composite [HP: 82] [LF: 0.42]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02141	0.00428	527.74261	529.55369
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02159	0.00432	532.17175	533.99803
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

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2.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10_{FD}: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

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VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

2.3 Trenching/Excavating Phase

2.3.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

Start Month: 3

Start Quarter: 1

Start Year: 2025

- Phase Duration

Number of Month: 1

Number of Days: 0

2.3.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft²): 4500

Amount of Material to be Hauled On-Site (yd³): 0

Amount of Material to be Hauled Off-Site (yd³): 0

- Trenching Default Settings

Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.3.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

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Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.40191	0.00542	3.44643	4.21104	0.10704	0.09848
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.49122	0.00542	3.71341	4.67487	0.13603	0.12515
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02382	0.00476	587.13772	589.15263
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02385	0.00477	588.02637	590.04433
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.3.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10_{FD}: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

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CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

2.4 Building Construction Phase

2.4.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 4

Start Quarter: 1

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Start Year: 2025

- Phase Duration

Number of Month: 3

Number of Days: 0

2.4.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial

Area of Building (ft²): 1325

Height of Building (ft): 10

Number of Units: N/A

- Building Construction Default Settings

Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

2.4.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.20113	0.00487	1.94968	1.66287	0.07909	0.07277
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.26944	0.00487	2.55142	3.59881	0.13498	0.12418

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Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.19600	0.00489	2.00960	3.48168	0.07738	0.07119

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02140	0.00428	527.58451	529.39505
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02138	0.00428	527.10822	528.91712
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02149	0.00430	529.86270	531.68105

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.4.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft³ to trips (0.38 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.5 Architectural Coatings Phase

2.5.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Start Month: 7
Start Quarter: 1
Start Year: 2025

- Phase Duration

Number of Month: 1
Number of Days: 0

2.5.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information

Building Category: Non-Residential
Total Square Footage (ft²): 146
Number of Units: N/A

- Architectural Coatings Default Settings

Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.5.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.25798	0.00173	0.13704	3.54119	0.00444	0.00392	0.05173
LDGT	0.22619	0.00216	0.18482	3.23800	0.00525	0.00464	0.04349
HDGV	0.80064	0.00481	0.64184	10.22434	0.02147	0.01899	0.09265
LDDV	0.10809	0.00125	0.15041	5.26526	0.00346	0.00318	0.01645
LDDT	0.21679	0.00144	0.48667	5.13251	0.00572	0.00526	0.01750
HDDV	0.13376	0.00423	2.51490	1.53956	0.05150	0.04738	0.06488
MC	2.56309	0.00203	0.66762	12.13254	0.02184	0.01932	0.05345

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO _{2e}
LDGV	0.01511	0.00499	327.07943	328.94261
LDGT	0.01556	0.00728	407.49234	410.04927
HDGV	0.05441	0.02671	908.72175	918.03138
LDDV	0.05358	0.00068	372.03561	373.57765
LDDT	0.04272	0.00101	424.70239	426.07163
HDDV	0.02998	0.15994	1257.65772	1306.06840
MC	0.11926	0.00307	394.63359	398.52882

2.5.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1: Conversion Factor man days to trips (1 trip / 1 man * day)

WT: Average Worker Round Trip Commute (mile)

PA: Paint Area (ft²)

800: Conversion Factor square feet to man days (1 ft² / 1 man * day)

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL} : Vehicle Emissions (TONs)

VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL} : Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

VOC_{AC} : Architectural Coating VOC Emissions (TONs)

BA: Area of Building (ft²)

2.0: Conversion Factor total area to coated area (2.0 ft² coated area / total area)

0.0116: Emission Factor (lb/ft²)

2000: Conversion Factor pounds to tons

1 Appendix D Construction Equipment Noise Emission Levels

Table D-1 Construction Equipment Noise Emission Levels

<i>Equipment</i>	<i>Typical Noise Level (dBA) 50 feet from Source</i>
Air compressor	81
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Crane	88
Dozer	85
Generator	81
Grader	85
Impact wrench	85
Jack hammer	88
Loader	85
Paver	89
Pump	76
Rail saw	90
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike driver	77
Tie cutter	84
Tie inserter	85
Truck	88

Source: Federal Transit Administration, 2006.

Key: dBA = A-weighted decibels.

Note: Table based on a U.S. Environmental Protection Agency Report, which measured data from railroad construction equipment taken during the Northeast Corridor Improvement Project, and other measured data.

Appendix E Noise Calculations

Underwater Test Tank Facility at NSF Indian Head

Distance Calculations for Construction Noise

$$dB1 - 10(a) \log(R2/R1) = dB2$$

dB1 = noise level at construction site

dB2 = noise level at receptor

a = conventional drop-off rate coefficient

a = 2.0 for point source, no ground or atmospheric absorption

R1 = distance from referenced noise level

R2 = distance from receptor

Specific Calculations for UTT

Alternative 1, Construction

Site 250 feet from receptor; noise level 74 dBA at site

$$74 - 10(2) \log(250/50) = 60$$

Site 250 feet from receptor; noise level 90 dBA at site

$$90 - 10(2) \log(250/50) = 76$$

1

Appendix F Draft Noise Study

Blue Ridge Research and Consulting, LLC

Draft Final Report

Noise Study for Naval Surface Warfare Center Indian Head (NSWC IHD) Underwater Test Tank (UTT) Environmental Assessment (EA)

11 July 2024

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Report No.

BRRC-24-13



1 List of Acronyms

2	ANSI	American National Standards Institute, Inc.
3	AR	Army Regulation
4	BNoise2	Large Arms Noise Assessment Model
5	dB	Decibel
6	dBA	A-Weighted Sound Level
7	dB _{pk}	Peak Sound Pressure Level
8	CDNL	C-Weighted Day-Night Average Sound Level
9	DCPH-A	Defense Centers for Public Health - Aberdeen
10	DNL	Day-Night Average Sound Level
11	DoD	Department of Defense
12	EA	Environmental Assessment
13	EIS	Environmental Impact Statement
14	EOD	Explosive Ordnance Disposal
15	EPA	Environmental Protection Agency
16	ETR	Explosive Test Range
17	FICUN	Federal Interagency Committee on Urban Noise
18	ft	Feet
19	FY	Fiscal Year
20	HE	High Explosive
21	Hz	Hertz
22	IDH	Indian Head
23	lbs	Pounds
24	L _{Cdn}	C-Weighted Day-Night Average Sound Level
25	L _{pk}	Peak Sound Level
26	LUPZ	Land Use Planning Zone
27	m	Meter
28	mm	Millimeter
29	NEPA	National Environmental Policy Act
30	NEW	Net Explosive Weight
31	NSWC	Naval Surface Warfare Center
32	NM	Nautical Mile
33	SEL	Sound Exposure Level
34	UTT	Underwater Test Tank

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1 Introduction

This noise analysis supports the Department of the Navy's (hereafter referred to as the Navy) Environmental Assessment (EA) being conducted to construct an Underwater Test Tank (UTT) facility for new Explosive Ordnance Disposal (EOD) underwater technologies and energetic systems. The primary purpose of this report is to present the EOD data and noise exposures associated with operations under Current (No Action) and Proposed Action Alternatives (include the UTT noise exposure).

1.1 Purpose

The Navy is preparing an EA to assess the potential environmental impacts of adding the UTT facility at Naval Surface Warfare Center Indian Head (NSWC IHD). The UTT will provide controlled underwater conditions to develop new technologies for Navy EOD divers. The purpose of the Noise Study is to determine the potential for environmental impacts from the UTT facility operations including:

- Intentional underwater detonations
- Unintentional (accidental) underwater detonations
- Unintentional (accidental) over-water detonations
- Cumulative noise combined with activity on other ranges at NSWC IHD

1.2 Description of NSWC IHD EOD Ranges

As part of the Naval Sea Systems Command and the Navy's Science and Engineering Establishment, NSWC IHD is the Navy's premier facility for ordnance, energetics and EOD solutions (U.S. Navy; Naval Sea Systems Command, 2024). Energetics are explosives, propellants, pyrotechnics, reactive materials, related chemicals and fuels that are used in propulsion systems and ordnances. The Command's capabilities address all aspects of the energetics technical discipline including: basic research, applied technology, technology demonstration and prototyping, engineering development, acquisition, low-rate production, in-service engineering/mishaps, failure investigations, surveillance, EOD technology/information and demilitarization. NSWC IHD has two active ranges for ordnance detonations and EODs: Explosive Test Range 2 (ETR-2) and ETR-3, both located in Stump Neck, MD. ETR-6 is inactive, and a separate National Environmental Policy Act (NEPA) action would be required to reactivate ETR-6. Therefore, ETR-6 was not modeled in the noise analysis. For the Proposed Action to create the UTT, the location of the UTT is also in Stump Neck and located northeast of ETR-2 and ETR-3. Figure 1-1 displays the locations of ETR-2, ETR-3, and the proposed UTT in Stump Neck. Additional noise generation facilities are the large motor testing firing bays, which are located on the west side of Cornwallis Neck to the northeast, approximately 1.2 Nautical Mile (NM) across the bay.



Figure 1-1. NSWC IHD Study Area

1.3 Overview of Scenarios

The noise analysis considers two scenarios: Existing Conditions (No Action) and Proposed Action. The No Action Scenario includes current operational levels at ETR-2, ETR-3, and the large motor testing facility. The future operational levels at ETR-2, ETR-3, and the large motor testing facility are anticipated to be the same as the current operational levels with no plans of future increases of EOD operations. Therefore, the No Action scenario is identical to the current baseline operational levels. The Proposed Action scenario only includes the addition of the UTT facility EOD and ordnance detonation operations.

1.4 Report Outline

To guide the reader, this report will provide the operational data description for the various noise source types at ETR-2, ETR-3, the large motor testing facility and the Proposed Action UTT, and it presents the total noise results for the No Action and the Proposed Action scenarios. Section 2 describes noise metrics and noise models used for this noise analysis. Section 3 describes the

- 1 operational parameters for the blast noise modeling and the modeling of the motors at the large
- 2 motor test facility. Section 4 presents the findings of the noise results for the No Action and
- 3 Proposed Action scenarios. Section 5 describes the recommended mitigations and summarizes
- 4 the results of the analysis.

2 Noise Metrics and Models

2.1 Noise Metrics

The noise environment at military facilities, such as NSWC IHD, includes various types of noise sources that can either be classified as continuous or impulsive noise. *Continuous noise* is a technical term describing a noise event, which has a gradual onset and has a duration greater than a few seconds, such as aircraft overflights, but not necessarily noise that is occurring at all times. In contrast, *impulsive noise* refers to sudden noise events with rapid onsets and very brief durations such as weapon-firing or the detonation of explosives.

The noise environment at NSWC IHD is dominated by impulsive noise events at the EOD ranges. Humans perceive and react differently to impulsive and continuous noise events depending on the level, frequency, and duration of the event. Because of the difference in human response to these types of noise events, military operational noise is assessed using several noise metrics. The two most commonly used noise metrics are the Day-Night Average Sound Level (DNL) and peak noise level (L_{pk}).

The DNL is the federally recommended noise measure used for assessing cumulative sound exposures referenced to a 24-hour period. DNL (which is sometimes denoted by L_{dn}) is an average sound level, expressed in decibels (dB), which is commonly used to assess aircraft noise exposures in communities in the vicinity of airfields. (Federal Interagency Committee on Urban Noise (FICUN), August 1980) (U.S. Environmental Protection Agency (EPA), April 1982) (American National Standards Institute, Inc. (ANSI), 2003) DNL values are related to compatible/incompatible land uses and do not directly relate to any singular sound event a human may hear. DNL includes a 10 dB adjustment for nighttime noise events. Daytime is defined as the period from 0700 to 2200 hours, and nighttime is the period from 2200 to 0700 hours the following morning. The 10 dB adjustment accounts for the generally lower background sound levels and greater community sensitivity to noise during these nighttime hours.

To assess accurately the impacts on humans from these different types of noise events, the DNL metric is used with different weighting factors that emphasize certain parts of the audio frequency spectrum. The normal human ear detects sounds in the range from 20 Hertz (Hz) to 20,000 Hz, and it is most sensitive to sounds in the 1,000 to 4,000 Hz range. Community noise is therefore assessed using a filter that approximates the frequency response of the human ear to moderate sound levels, which adjusts low and high frequencies to match the sensitivity of the ear. This “A-weighting” filter is used to assess most community noise sources.

EOD operations at NSWC IHD produce substantial noise. This noise is impulsive in nature with sudden bursts of sound pressure originating from the explosions. For impulsive noise,

C-weighted sound levels are used. “C-weighted” denotes an adjustment to the frequency content of a noise event to represent human response to louder noise levels. Compared to A-weighting, C-weighting enhances the lower frequency content. The DNL metric is utilized to characterize the cumulative blast sound levels occurring during a 24-hour period, and C-weighted sound levels account for the lower frequency content and higher levels of explosions. For these EOD operations, the DNL is denoted as CDNL (or L_{Cdn}).

For blast noise, the US Army recommends using the peak pressures (L_{Pk}) to assess the potential for complaints. The L_{Pk} is the highest instantaneous, un-weighted sound level over any given period time. It is used to quantify impulsive, short duration events such as a weapon firing, EODs, or a sonic boom. High peak sound levels can generate complaints from people in the local community.

In this analysis, the large motor test facility noise and EOD blast noise (on ground at the ETRs and underwater at the UTT) was assessed using the Department of Defense (DoD) recommended noise metrics. (U.S. Army, December 2007) The noise from the ETRs and the UTT was assessed using dB_{Pk} metrics as well as C-weighted Day-Night Average Sound Level (CDNL or L_{Cdn}). The large motor test facility noise was assessed using A-weighted DNL since the motor tests are not impulsive, but rather have a duration of motor firing. Table 2-1 provides the noise level limits associated with land use planning. (U.S. Department of the Navy, Office of the Chief of Naval Operations, January 2008) (U.S. Army, December 2007) In general, most land uses are compatible within Noise Zone 1, and the complaint risk is slow. For Noise Zone 2, some land uses are incompatible with the noise and the complaint risk is moderate. Within Noise Zone 3, most land uses are incompatible and the complaint risk is high.

Table 2-1. Noise Zone Definitions

Noise Zone	Noise Limits		
	Aviation and Static Motor Runs $dB A L_{dn}$	Impulsive Blast Noise	
		$dB C L_{Cdn}$	$dB Pk$ (Peak)
LUPZ	60 to 65	57 to 62	N/A
1	< 65	< 62	< 115
2	65 to 75	62 to 70	115 to 130
3	> 75	> 70	> 130

2.2 Computerized Noise Exposure Models

CDNL and Peak noise contours for the ETR-2, ETR-3, and UTT operations were developed using the Blast Noise Model, BNoise2 (U.S. Army Construction Engineering Research Laboratories,

2009). NoiseMap was used to calculate the DNL contours from the operations at the Large Motor Test Facility. (Czech & Plotkin, November 1998)

2.2.1 Blast Noise Model (BNoise2)

The noise associated with the detonation of the explosives at the ranges and the initial overwater estimate at UTT was modeled using BNoise2. This software enables assessment of high-energy impulsive noise impacts via calculation and display of noise contours for large arms, including explosive charges, artillery, armor, and missiles. BNoise2 is used as an environmental planning tool to address unwanted noise as an environmental attribute in the community.

The impacts due to explosives at ETR-2, ETR-3, and UTT were modeled using 70, 62, and 57 dBC CDNL in BNoise2. In addition to CDNL, Pk15 contours at 115, 130, and 140 dBPk were generated using BNoise2. Per the BNoise2 software usage requirements, the model inputs and results were submitted to and approved by the Defense Health Agency 's Environmental Noise Branch, Defense Centers for Public Health - Aberdeen (DCPH-A). Because BNoise2 has limited munitions and explosive types, the Net Explosive Weight (NEW) in TNT was used as the input for all range munitions. The ETR-2, ETR-3, and UTT input data sources, NEW TNT equivalent, and the BNoise2 input data are presented in Section 3.

2.2.2 NoiseMap

Analyses of aircraft noise exposure around military airfield facilities are normally accomplished by using the NoiseMap program (Czech & Plotkin, November 1998). NoiseMap is a suite of computer programs that were developed by the US Air Force, which serves as the lead DoD agency for fixed-wing aircraft noise modeling. NoiseMap allows noise predictions without the actual implementation of the operations and noise monitoring of those actions.

The latest NoiseMap package of computer programs consists of BaseOps Version 7 (Wasmer & Maunsell, BaseOps 7.3 User's Guide, 2006), OMEGA10, OMEGA11 (Mohlmann, 1983), NoiseMap Version 7.3 (Downing, J. Micah, Technical Note, BRRC 16-16, 2016), NMPlot (Wasmer & Maunsell, NMPlot 4.955 User's Guide, 2006), and the latest issue of NOISEFILE. NOISEFILE is the DoD noise database originating from noise measurements of controlled flyovers at prescribed power, speed, and drag configurations for many models of aircraft. The data input module BaseOps allows the user to enter the runway coordinates, airfield information, flight tracks, and flight profiles along each track by each aircraft, numbers of flight operations, run-up coordinates, run-up profiles, and run-up operations. After the operational parameters are defined, NoiseMap calculates DNL values on a grid of ground locations on and around the facility. The NMPlot program draws contours of equal DNL for overlay onto land-use maps. For noise studies, as a minimum, DNL contours of 65, 70, and 75 dB are developed. NoiseMap also has the flexibility of



1 calculating sound metrics (e.g., SEL, $L_{eq,24hr}$, and DNL) at specified points so that noise values at
2 representative locations around an airfield can be described in more detail.

3 NoiseMap is most accurate for comparing “before-and-after” community noise effects, which
4 would result from the implementation of proposed changes or alternative noise control actions
5 when the calculations are made in a consistent manner. NoiseMap allows predicting noise levels
6 for the proposed action prior to implementing and noise monitoring of the action. The noise
7 modeling results of these computer programs, along with noise impact guidelines, provide a
8 relative measure of noise effects around aircraft operating facilities.

9 NoiseMap was utilized in this noise study to assess the noise from the static engine runs at the
10 Large Motor Test Facility. An uninstalled F-15E engine in max afterburner engine power was
11 used to approximate the noise source of the typical thrust of the large motors testing operations
12 because NoiseMap does not have the source data of the types of large motors tested at the Large
13 Motor Test Facility.



3 Operational Data and BNoise2 Inputs

Annual operational data at NSWC IHD was requested in November 2023 for all explosive ranges and large motor testing located within the NSWC. Data sets for annual munitions expenditures at ETR-2 and ETR-3 were received and analyzed for input into BNoise2.

ETR-6 is an additional EOD range at NSWC IHD, although this range is not active, and no current plans exists to reactivate this range. If ETR-6 were to be reactivated, a separate NEPA action would cover the reactivation.

3.1 ETR-2

At ETR-2, eight years of annual expenditures were received, FY 2016 through FY 2023. Since several of the years (FY 2021 and earlier) had significantly lower total NEW than FY2023, FY 2023 munitions expenditures were modeled for ETR-2. ETR-2 is modeled in the No Action Alternative, with the CDNL and Peak contours added to the UTT contours in the Proposed Action.

Table 3-1 displays the modeled explosive munition expenditure data for ETR-2 as well as the BNoise2 modeling quantities and input data. In BNoise2, the exact unit quantities of the NEW (lbs) for the munitions is not always available, so the closest NEW entry within BNoise2 was used (see the "BNoise Comment" column in Table 3-1). The smallest entry for NEW in BNoise2 is 0.022 lbs, and the Army DCPH-A directed that munitions with a NEW below 0.022 lbs should not be included within the modeling results (because BNoise2 includes a $\pm 10\%$ range on the larger munitions that accounts for blasting caps, det cord, etc.). The total modeled NEW (lbs) in BNoise2 is 213.4 lbs, while the actual ETR-2 NEW for FY 2023 is 213.8. The difference in the annual total modeled vs. actual NEW is due to using the closest entry available in BNoise2 for several of the munitions as well as the removal of minor munitions.



1 **Table 3-1. FY 2023 ETR-2 Annual Munitions Expenditure Data and BNoise2 Modeled Input Data**

ETR-2 STUMP NECK FY23 Munitions Expenditures						BNoise2 Data Entry			
NALC or Description	NEW (lbs/grams)	Unit	NEW Grains	Range QTY	Total NEW (lbs)	Input (lbs)	Code	QTY	Comment
MK 66 Mod 0	0.00204	lbs		24	0.05	Removed from modeling			
DWEC, MK 277 Mod 0		grains	110	60	0.94	Removed from modeling			
M023, C4 M112	1.25	lbs		49	61.25	1.390	ENT19	44	Closest Entry
DWHH, Cap, blasting MK 18	1.413	grams		57	0.18	Removed from modeling			
153mm EFP	8	lbs		15	120.00	8.800	ENT27	14	Closest Entry
135mm EFP	4	lbs		2	8.00	4.400	ENT24	2	Exact Match
CHG, DEMO VMODS	2.2	lbs		9	19.80	2.200	ETN21	9	Exact Match
DWED, MK 279 Mod 1		grains	110	95	1.49	Removed from modeling			
CTG 12 GA, EOD ALTP X-10-1		grains	170	19	0.46	0.022	ENT01	21	Closest Entry
CTG, 12 GA, EOD BK 110		grains	110	25	0.39	Removed from modeling			
SS01, CARTRIDGE, MK 209 MOD 1		grains	70	120	1.20	Removed from modeling			
Note: Army DCPH-A directed that munitions with a NEW below 0.022 lbs should not be included within the modeling results.									

2
3



3.2 ETR-3

For ETR-3, FY 2023 Munitions Expenditure Data was received from NSWC IHD personnel. Table 3-2 displays the modeled explosive munition expenditure data for ETR-3 and the BNoise2 modeling quantities and input data. ETR-3 has two detonation locations, which are separated by only 40 ft. Both detonating locations were modeled in BNoise2 and are displayed as ETR-3 Range 1 and Range 2. The annual munitions were split equally between the two sites. The modeling in BNoise2 for ETR-3 was similar to ETR-2 in that the closest entry in BNoise2 was used for the single event NEWs. If the single event munition NEW was smaller than the BNoise2 minimum NEW of 0.022 lbs, then such munitions were not included within the modeling. The total modeled NEW (lbs) at ETR-3 (both detonation sites combined) in BNoise2 is 393.5 lbs, while the actual ETR-3 NEW for FY 2023 is 388.5. The difference in the annual total modeled vs. the annual total actual NEW is due to using the closest entry in BNoise2 for several of the larger munitions NEW inputs (e.g., 120 mm CTG).

1 Table 3-2. FY 2023 ETR-3 Annual Munitions Expenditure Data and BNoise2 Modeled Input Data

ETR-3 STUMP NECK FY23 Munitions Expenditures					BNoise2 Data Entry					
NALC or Description	NEW	Unit	Range QTY	Total NEW (lbs)	Input (lbs)	Code	QTY	ETR-3 Range 1	ETR-3 Range 2	BNoise Comment
Shock Tube	0.0009	lbs/ft	96	0.09	Removed from Modeling					
DWHH, MK 18 MOD O BLASTING CAP	0.0032	lbs	79	0.25	Removed from Modeling					
M023, CHARGE DEMO M112	1.25	lbs	196	245.00	1.390	ENT19	176	88	88	Closest Entry
M456, CORD DETONATING	0.007	lbs/ft	8	0.06	Removed from Modeling					
M174, .50 CAL. BLANK	0.0255	lbs	6	0.15	0.022	ENT01	7	4	3	Smallest Entry
M980, Deta Sheet	0.5264	lbs/ft	72	37.90	0.550	ENT15	69	35	34	Closest Entry
CTG. 120mm, M865A1	16.53	lbs	3	49.59	17.600	ENT30	3	2	1	Closest Entry
MJ-1 Fuze	0.0567	lbs	8	0.45	Removed from Modeling					
M131, CAP BLASTING M7	0.0027	lbs	37	0.10	Removed from Modeling					
MK 4 Signal Cart	0.0308	lbs	10	0.31	0.022	ENT01	14	7	7	Smallest Entry
BK110, Cart. 12ga blank	0.016	lbs	105	1.68	Removed from Modeling					
PBXN-9	2.56	lbs	2	5.12	2.600	ETN22	2	1	1	Closest Entry
TNT	11.73	lbs	1	11.73	11	ENT28	1	1	0	Closest Entry
PG-7 Warheads	0.6922	lbs	3	2.08	0.710	ETN06	3	2	1	Closest Entry
BA44, M720A2 60mm Mortar	0.9406	lbs	2	1.88	0.88	ETN17	2	1	1	Closest Entry
OF32, 100mm projectile, TNT	3.75	lbs	1	3.75	3.500	ETN23	1	1	0	Closest Entry
M35, apers mine	0.2204	lbs	3	0.66	0.220	ETN11	3	2	1	Exact Match
M278, 2.75in Warhead	5	lbs	4	20.00	5.500	ETN25	4	2	2	Closest Entry
J003, M87A1 Volcano	7.7628	lbs	1	7.76	8.800	ENT27	1	1	1	Closest Entry
Hero 30	1.1023	lbs	2	2.20	1.100	ENT18	2	1	1	Closest Entry
MRV-U, Fuze	0.0683	lbs	6	0.41	Removed from Modeling					
Vog-25	0.0617	lbs	6	0.37	0.055	ENT05	7	4	3	Closest Entry
Note: Army DCPH-A directed that munitions with a NEW below 0.022 lbs should not be included within the modeling results.										

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3.3 Large Motor Testing Facility

For the large motor testing facility, a separate noise analysis was performed to model the DNL noise contours from static engine runs of an uninstalled F-15E fighter jet engine. Uninstalled fighter jet engine runs are the closest available approximation to the relative thrust of the large and small motor tested in this facility. The large motor test facility includes testing of large and small motors that are fired inside two earth-covered bays that are open to the environment on one side. One motor type is fired both vertically where the plume hits an angled heat shield, and horizontally out in the open as part of a functional ground test of the motor or missile. The plume is fired out the open side towards the Potomac River in a northwest heading. Figure 3-1 displays the locations of the two firing bays. The average duration of the tests is eight seconds, and the large motors have an average size of 800 lbs. The small motors range in size from 0.25 lbs to 7 lbs. For the large motor test noise approximation, the F-15E engine is fired out in the open (not enclosed on three sides for the actual large motor tests) in max afterburner engine power for eight seconds. There are on average 18 annual large motor tests that are split equally between the two firing bay sites. Since the F-15E engine is fired out in the open instead of inside the earth covered firing bays, the noise analysis for the large motor test facility is anticipated to be a conservative estimate. There are a total of 690 annual tests of small motors (less than 7 lbs). These tests are modeled for the F-15E engine at 50% engine power (instead of afterburner max power for the large motor tests) for eight seconds. No large or small motor tests occur during the acoustic nighttime hours of 2200-0700.



1

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Figure 3-1. Satellite Image of the Large Motor Testing Facility Firing Bays

3.4 Proposed Action UTT

The Proposed Action scenario takes the existing No Action noise contours (both Peak15 and CDNL from the ETR-2 and ETR-3 ranges) and adds the noise contours attributed to the Proposed UTT facility. The UTT noise is modeled in BNoise2. However, the analysis is more complex than the noise analysis for ETR-2 and ETR-3. In ETR-2 and ETR-3, all of the detonations are above the surface and can be modeled directly in BNoise2. At the UTT, however, 95% of the operational detonations are completely underwater, 3% are underwater with an overwater minimal charge of 40 g NEW, and 2% are underwater with an overwater maximum charge of 259 g NEW. While these overwater charges can be modeled directly in BNoise2 with the closest NEW entries, the underwater charges must be modified in BNoise2 for the noise attenuation under the water. The operations at the UTT are expected to be similar to the number of annual operations and types of munitions at ETR-2. Table 3-3 presents the underwater component of the UTT munitions, which are 100% of the ETR-2 munitions modeled in Table 3-1.

To calculate the unit NEW for the underwater noise (and account for the underwater transmission loss), the SELC data from the underwater demolition pond blast measurements at NSA Panama City were used. The NSA Panama City Noise Study (Mellon & Downing, March 2017) included sound level measurements of 1.25 lbs of C-4 explosions at a depth of 5 ft below the surface of the water. The measured SELC at 880 ft (268 m) from this C-4 underwater blast was 94.5 dBC. Using a 1:1 ratio of C4 to TNT (a conservative estimate for the modeling) in BNoise2, 0.022 lbs of TNT creates a 94.5 SELC at 880 ft. Therefore, to create the same noise level for underwater vs. overwater munition expenditures, a ratio of 0.022 lbs divided by 1.25 lbs was used (a factor of 0.0176) to convert the overwater BNoise2 data to the underwater equivalent. In the Bnoise2 Data for Underwater Noise section (far right table) of Table 3.3, the Unit Calc is from the Overwater BNoise2 Data multiplied by the 0.0176 factor to convert from overwater munitions (from ETR-2) to the underwater munitions in the UTT.

Table 3-4 displays the overwater minimum and overwater maximum charges modeled at the UTT. The overwater minimum charge of 0.087 lbs NEW would occur for 3% of the total annual munitions at the UTT. The overwater minimum charges, modeled at 0.088 lbs NEW in BNoise2, are modeled as 14 annual detonations (3% of 475) at the UTT. The overwater maximum charge of 0.57 lbs NEW would occur for 2% of the annual 475 munitions at the UTT, which will be 10 annual detonations. The CDNL and Peak15 noise levels from the overwater minimum and overwater maximum charges are added to the underwater munition noise levels to create the total Proposed Action UTT noise levels displayed in Section 4.

Another component of the UTT noise to be considered is the unintentional (accidental) underwater and unintentional overwater detonations. From the data collection effort, the estimated percentage of annual munitions that would be unintentional underwater is 0.0015%,



1 and the estimated percentage of annual munitions that would be unintentional overwater is also
2 0.0015%. Since 0.0015% of the total annual NEW at UTT (214 lbs NEW) is only 0.003 lbs NEW and
3 below the minimum entry of 0.022 lbs NEW in BNoise2, the noise from these unintentional
4 detonations is negligible relative to the intentional expenditures.

1 **Table 3-3. Proposed Action UTT Underwater Annual Munitions Expenditure Data and BNoise2 Modeled Input Data**

Underwater Munitions Expenditures Based On ETR-2				BNoise2 Equivalent Data				BNoise2 Underwater Data Entry			
NALC or Description	Range QTY	Total NEW (lbs)	Unit Calc	Input (lbs)	Code	QTY	Comment	QTY	NEW lbs TNT*	Code	Input
0.022 NEW (lbs) TNT	400	4.73	0.012	0.022	ENT01	215	Smallest Entry	Removed from Modeling			
M023, C4 M112	49	61.25	1.250	1.390	ENT19	44	Closest Entry	49	0.022	ETN01	0.022 lbs
153mm EFP	15	120.00	8.000	8.800	ENT27	14	Closest Entry	15	0.141	ETN09	0.139 lbs
135mm EFP	2	8.00	4.000	4.400	ENT24	2	Closest Entry	2	0.070	ETN06	0.071 lbs
CHG, DEMO VMODS	9	19.80	2.200	2.200	ETN21	9	Exact Match	10	0.039	ETN03	0.035 lbs
FY23 NEW Grand Total in lbs				213.78					*Overwater Equivalent of Underwater TNT		

2 Note: Army DCPH-A directed that munitions with a NEW below 0.022 lbs should not be included within the modeling results.

3 **Table 3-4. Proposed Action UTT Overwater Minimum and Maximum Charges Annual Data and BNoise2 Modeled Input Data**

Additional Overwater Expenditures				BNoise2 Equivalent Data			
NALC or Description	Range QTY	Total NEW (lbs)	Unit Calc	Input (lbs)	Code	QTY	Comment
0.087 NEW (lbs) TNT	14	1.22	0.087	0.088	ENT07	14	Closest Entry
0.570 NEW (lbs) TNT	10	5.70	0.570	0.550	ENT15	10	Closest Entry

4



4 Noise Results and Findings

The DNL at the large motor test facility was modeled to determine if the existing noise from the large motor testing would contribute to the Proposed Action UTT noise levels. Figure 4-1 displays the DNL contours from the large motor test facility noise analysis, which yielded a maximum DNL value of 41 dBA. The 35 dBA DNL contour in green and the 40 dBA DNL contour in blue do not extend beyond the test facility boarder. The noise resulting from the large motor test facility does not contribute to the noise of the Proposed Action UTT, which is located over 1 NM to the southwest of the large motor test facility.

The No Action Pk15 noise contours are displayed in Figure 4-2 for the FY 2023 ETR-2 and ETR-3 munitions expenditure data modeled in BNoise2. The UTT and the large motor testing facility noise is not part of these Pk15 contours. The 115 dB_{pk} contours (in blue) are approximately 5.8 NM in diameter and extend beyond the Potomac River to the west, into Cornwallis Neck to the northeast, to Rison, MD to the east, and to Quantico to the southwest. The 130 dB_{pk} contours (in yellow) are less than half the size of the 150 dB_{pk} contours, and do not extend across the Potomac River. The 140 dB_{pk} contours (orange) barely extend across Chicamuxen Creek to the southeast and do not extend as far as the proposed UTT site to the northeast.

The No Action CDNL noise contours are shown in Figure 4-3 for the FY 2023 ETR-2 and ETR-3 munitions expenditures. The 57 dBC CDNL contour (in green) extends beyond Chicamuxen Creek to the east by ¼ NM at the greatest distance between land and water, but does not extend to the residential area to the southeast of ETR-3 across the wider section of Chicamuxen Creek or to the UTT location to the northeast. The 62 dBC CDNL contour (in light blue) extends across the creek to the small peninsula directly across the water from ETR-2, but only 400 ft of the peninsula is inside of the 62 dBC CDNL contour. The 70 dBC CDNL contour (red) remains within the NSWC IHD facility boundary and extends 600 ft into Chicamuxen Creek to the southeast of ETR-3.

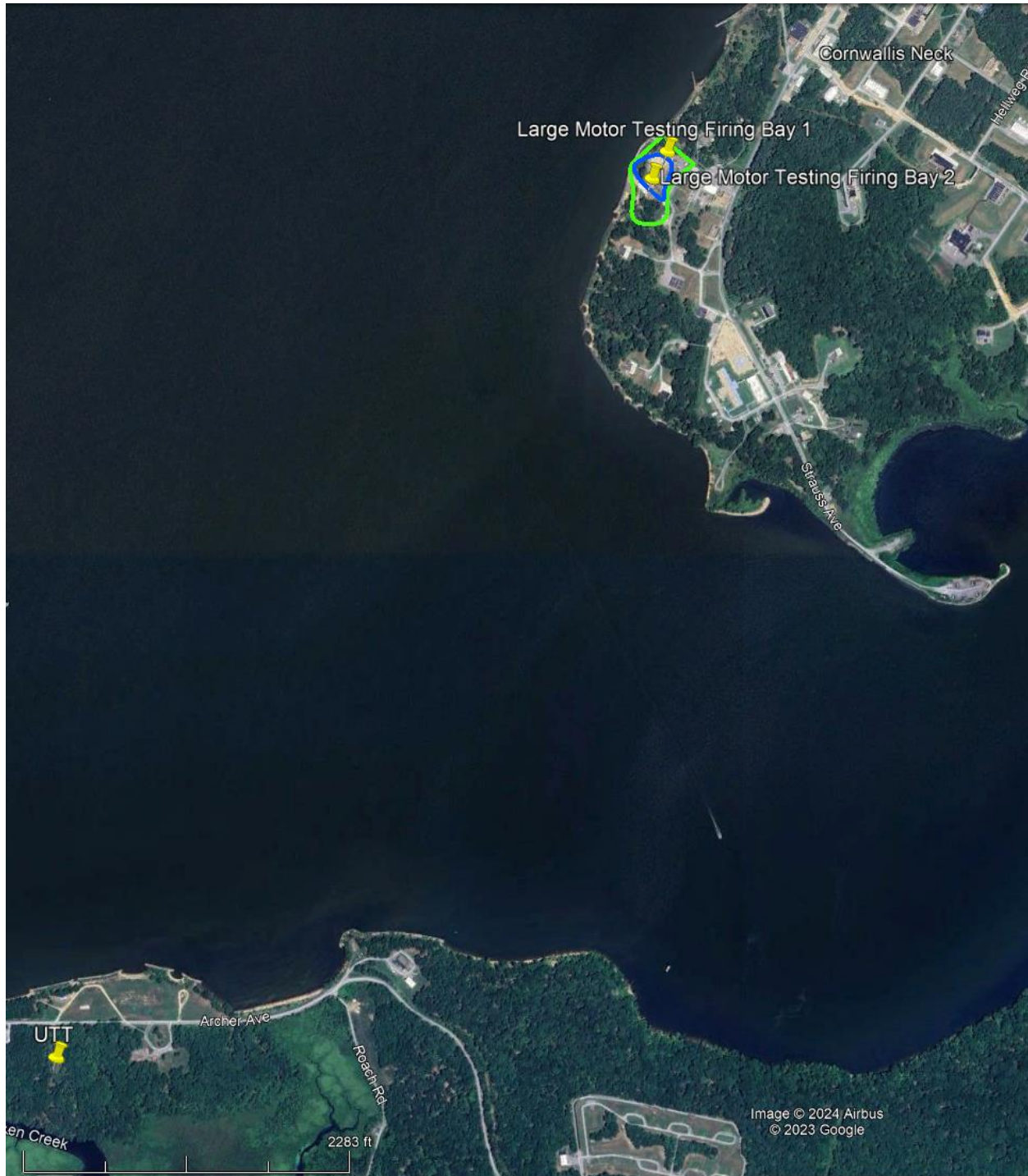
The Proposed Action Pk15 noise contours are displayed in Figure 4-4. These contours display the combined Peak noise of the No Action ETR-2 and ETR-3 with the Proposed UTT peak noise. Note that the No Action Pk15 noise contours remain on the map as well in blue (115 dB_{pk}), yellow (130 dB_{pk}), and orange (140 dB_{pk}). There is no change in the 115 dB_{pk} noise contour between the No Action and the Proposed Action scenarios. For the 130 dB_{pk} contour, the change from the No Action yellow contour and the Proposed Action green contour is only to the northeast of the UTT location. The additional area of the green Proposed Action 130 dB_{pk} outside of the yellow No Action 130 dB_{pk} contour is partially over the water, and partially on land along Roach Rd and Archer Ave. For the 140 dB_{pk} contour, the Proposed Action contour (in magenta) adds a 0.25 NM radius circle surrounding the UTT facility. Thus, any location within 0.25 NM of the UTT facility



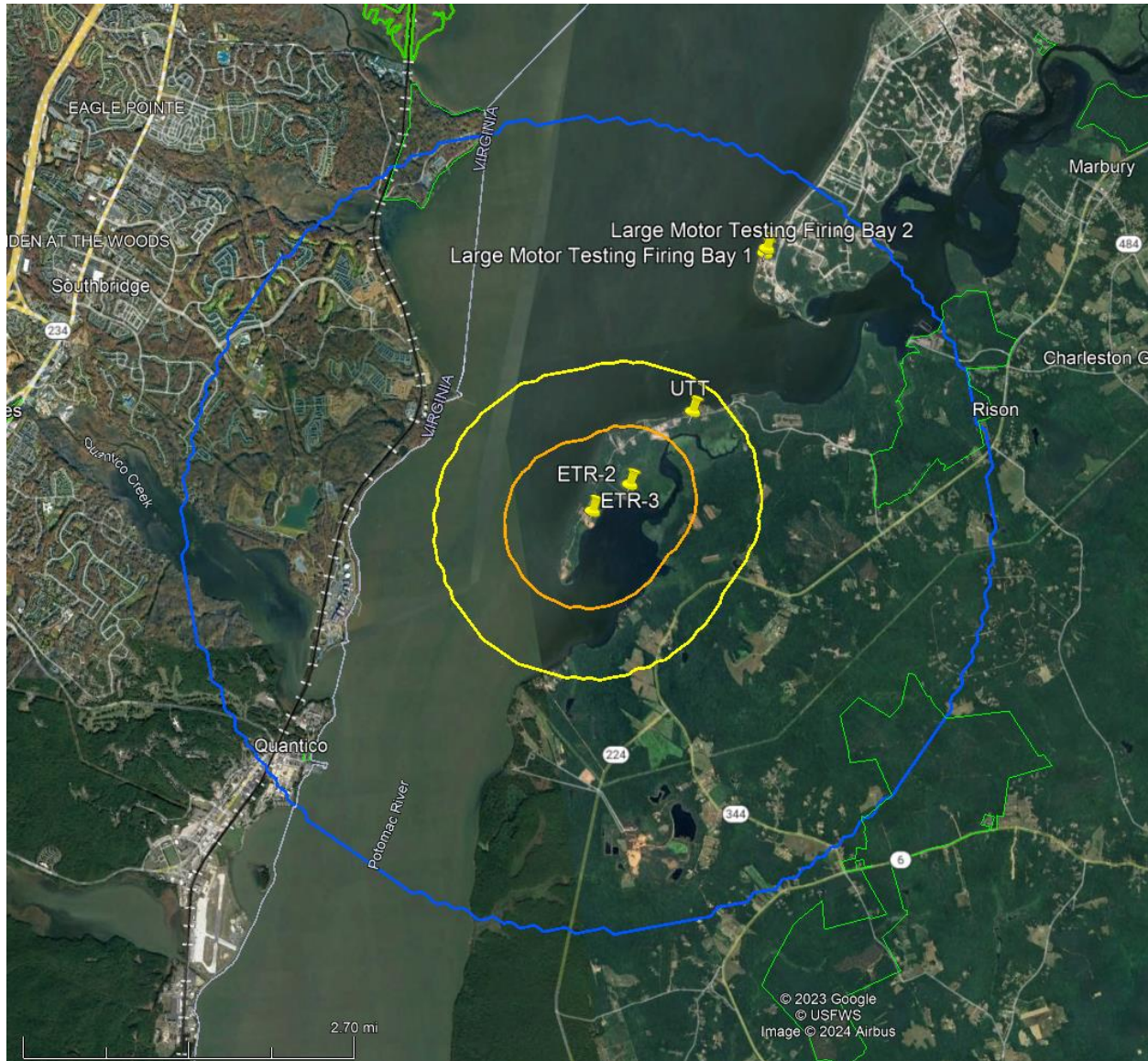
1 falls within the Proposed Action 140 dB_{pk} contour. All other areas of the Proposed Action 140 dB_{pk}
2 contour are identical to the No Action 140 dB_{pk} contour.

3 The Proposed Action CDNL noise contours are presented in Figure 4-5. The No Action 57 dBC
4 CDNL contour (in green) is also displayed to show how the Proposed Action 57 dBC CDNL
5 contour (in yellow) is pushed out slightly between ETR-2 and the UTT facility to connect the
6 ETR-2 and ETR-3 57 dBC contour with the UTT 57 dBC contour. The light blue 62 dBC CDNL
7 contour surrounding UTT is separate from the 62 CDNL contour surrounding ETR-2 and ETR-3.
8 This 62 dBC contour surrounding the UTT has a radius of approximately 450 ft from the UTT site.
9 The 70 dBC contour associated with the UTT noise has a maximum radius of 170 ft from the UTT
10 site. Note that the 62 and 70 dBC CDNL contour surrounding ETR-2 and ETR-3 are identical
11 between the No Action and the Proposed Action.

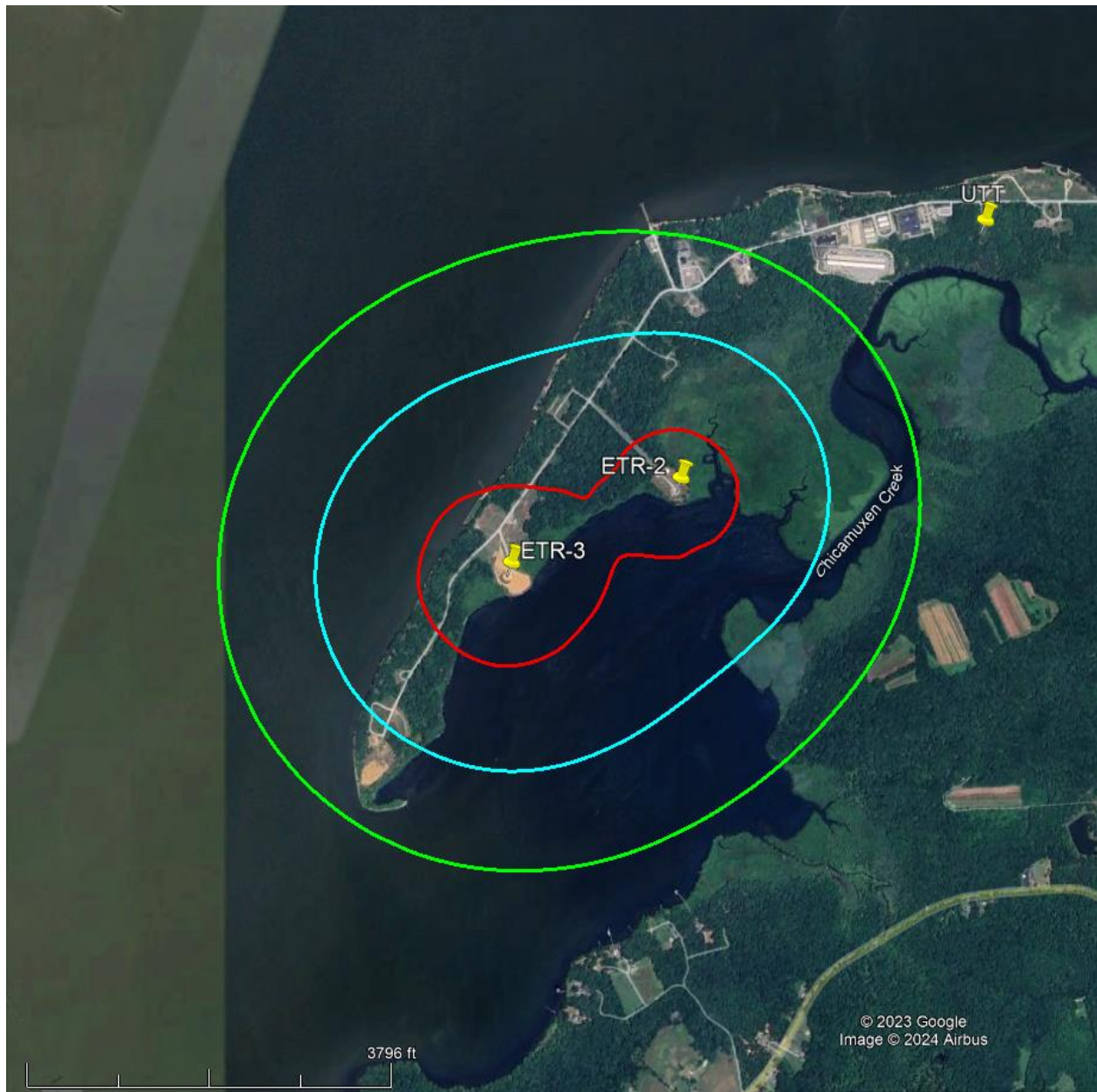
12 While the Peak noise contours can be used for the risk of complaints within nearby communities,
13 the land use compatibility is determined through use of the CDNL contours. For the Proposed
14 Action, the Noise Zone 2 compatibility is determined through the 62 dBC CDNL contour. From
15 Figure 4-5, the light blue 62 dBC CDNL contour associated with the Proposed Action UTT facility
16 remains on the NSWC IHD property and is bounded by the Chicamuxen Creek to the south of
17 the UTT and 50 ft north of Archer Ave to the north of the UTT. There are no residential areas
18 within the 62 dBC CDNL noise contour associated with the Proposed Action UTT facility.
19 Therefore, there are no incompatible land uses within the Proposed Action CDNL contours.



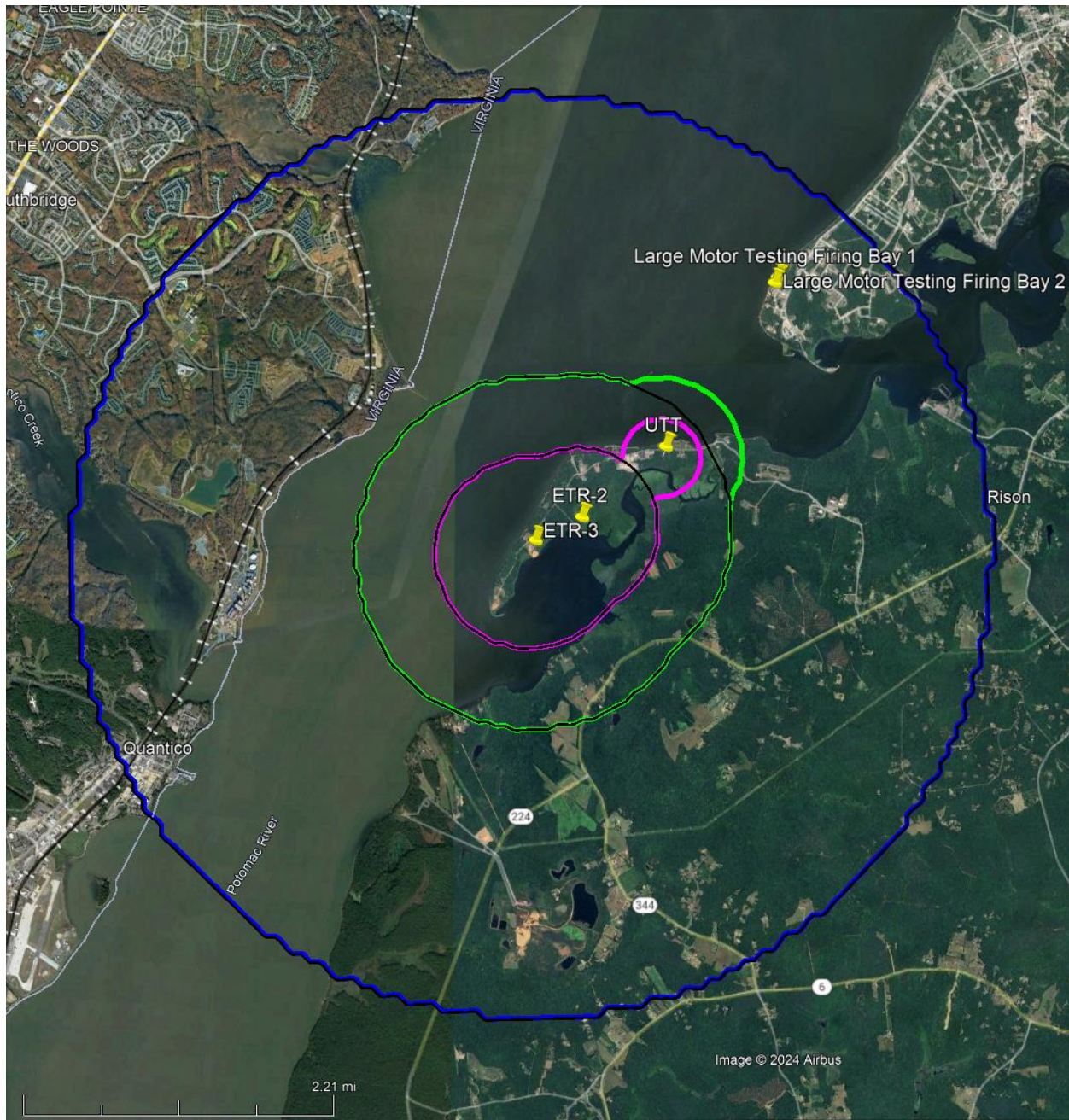
1
2 **Figure 4-1. DNL Contours (35 dBA in Green and 40 dBA in Blue) of the Large Motor Test**
3 **Facility**



1
2 **Figure 4-2. No Action Pk15 115 (blue), 130 (yellow), and 140 (orange) dBPk Noise Contours for**
3 **ETR-2 & ETR-3**



1
2 **Figure 4-3. No Action CDNL 57 (Green), 62 (Light Blue), & 70 (Red) dBC Noise Contours for**
3 **ETR-2 & ETR-3**



1
2 **Figure 4-4. Proposed Action Pk15 115 (blue), 130 (green), & 140 (magenta) dBPk Noise Contours**
3 **for ETR-2, ETR-3, & UTT Facility Compared to No Action Pk15 Noise Contours (black)**



1
2 **Figure 4-5. Proposed Action CDNL 57 (Yellow), 62 (Light Blue), & 70 (Red) dBC Noise Contours**
3 **for ETR-2, ETR-3, & UTT Facility Compared to the No Action CDNL Noise Contours (black)**

5 Potential Mitigation Measures and Summary

The Proposed Action CDNL contours displayed in Figure 4-5 show relatively small increases in CDNL surrounding the UTT facility site compared to the CDNL contours surrounding ETR-2 and ETR-3. No issues are expected with incompatible land use if the UTT facility is built at the proposed location, because the Proposed Action UTT 62 dBC CDNL contour (in light blue) remains within the NSWC IHD facility border. However, if the 57 dBC CDNL or 130 and 140 dBPk Peak noise contours associated with the UTT facility need to be reduced, then a couple of mitigation measures can be utilized to reduce the noise from the UTT facility.

The largest contributor to both the UTT Peak and CDNL noise contours is from the overwater maximum blast charges that occur above the water surface to facilitate the underwater detonation. These overwater maximum charges occur 10 times per year, which is 2% of the total number of annual munition expenditures planned at the UTT. While the Peak noise contours would not decrease by reducing the number of overwater maximum charges per year, the CDNL contours surrounding the UTT would decrease if the number of annual overwater maximum charges is reduced to less than 10 times per year. Decreasing the number of annual overwater maximum charges by half to 5 per year could result in CDNL decreases of 2-3 dBC, since most of the noise energy at the UTT is due to the overwater maximum charges.

The peak noise level at the UTT is caused by the 0.57 lb NEW of the overwater maximum charges. By reducing the overwater maximum charge NEW to less than 0.57 lbs, the peak noise level will be reduced to a single blast by a smaller NEW charge. By decreasing the maximum overwater blast charge, this mitigation would also reduce the CDNL noise contours. Another potential mitigation measure would be to differentiate the maximum NEW into smaller potential blasts that have a NEW between the overwater minimum of 0.087 lbs and the overwater maximum of 0.57 lbs. By having a 3rd category of overwater “medium” blast NEWs, the annual number of overwater maximum blasts would decrease, thereby decreasing the CDNL.

The conclusion of this UTT noise study is that both the Pk15 and CDNL noise levels due to the Proposed Action UTT noise are smaller than the combined noise levels from the ETR-2 and ETR-3 by a factor of approximately 3.0 for the CDNL and 3.5 for the Pk15 contours. That is, the ETR-2 and ETR-3 combined CDNL contours are approximately three times larger than the UTT CDNL contours, and the ETR-2 and ETR-3 Pk15 contours are approximately 3.5 times larger than the UTT Pk15 contours.

6 References

- American National Standards Institute, Inc. (ANSI). (2003). *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 5: Sound Level Descriptors for Determination of Compatible Land Use*, ANSI S12.9/Part5-1998 (R 2003).
- Czech, J., & Plotkin, K. (November 1998). *NMAP 7.0 User's Manual*, Wyle Research Report, WR 98-13.
- Downing, J. Micah. (Technical Note, BRRC 16-16, 2016). *Validation of Updates to NoiseFile Database and NoiseMap Modeling Software*. Blue Ridge Research and Consulting, LLC.
- Federal Interagency Committee on Urban Noise (FICUN). (August 1980). *Guidelines for Considering Noise in Land Use Planning and Control*.
- Mellon, J., & Downing, M. (March 2017). *Noise Study of Demolition Pond Activity at NSA Panama City, FL*.
- Mohlmann, H. T. (1983). Computer Programs for Producing Single-Event Aircraft Noise Data for Specific Engine Power and Meteorological Conditions for Use with USAF Community Noise Model (NOISEMAP). AFAMRL-TR-83-020.
- U.S. Army Construction Engineering Research Laboratories. (2009). *BNoise2, Large Arms Noise Assessment Model, Version 2.0, Rev. 12-01-2009*.
- U.S. Army. (December 2007). *Environmental Protection and Enhancement, Army Regulation 200-1*. Washington, DC: Headquarters Department of the Army.
- U.S. Department of the Navy, Office of the Chief of Naval Operations. (January 2008). *OPNAVINST 3550.1A, Range Air Installations Compatible Use Zones (RAICUZ) Program*.
- U.S. Environmental Protection Agency (EPA). (April 1982). *Guidelines for Noise Impact Analysis, Report 550/9-82-105 and PB82-219205*.
- U.S. Navy; Naval Sea Systems Command. (2024, July 9). *Warfare Centers: NSWC Indian Head: Who We Are*. Retrieved from Naval Sea Systems Command: <https://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Indian-Head/Who-We-Are/>
- Wasmer, F., & Maunsell, F. (2006). *BaseOps 7.3 User's Guide*. Wasmer Consulting.
- Wasmer, F., & Maunsell, F. (2006). *NMPlot 4.955 User's Guide*. Wasmer Consulting.