

ENVIRONMENTAL ASSESSMENT
FOR
CONSTRUCTION OF THE RANGE 5 STAGING AREA
AT
MARINE CORPS BASE QUANTICO,
STAFFORD COUNTY, VIRGINIA

**National Environmental Policy Act (NEPA) Coordination Program,
Environmental Planning Section,
Natural Resources and Environmental Affairs Branch
Installation and Environment Division
Marine Corps Base Quantico, Virginia**



2017

Proposed Agency Action: Construction of the Range 5 Staging Area.

Marine Corps Base Quantico, Virginia

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Abstract: This Environmental Assessment is intended to meet NEPA requirements to establish a 13.4 acre Staging Area near Range 5 in Training Area 9C at Marine Corps Base Quantico (MCBQ), Virginia. The No Action Alternative (Alternative A) and the Action Alternative (Alternative B) were evaluated. Alternative A would have no adverse effects on cultural/natural resources or the human environment as the status quo would be maintained.

Alternative B - Construction of the Range 5 Staging Area would cause no significant impacts to land use, water resources, biological resources, air quality, noise, infrastructure, traffic, socioeconomics, or hazardous waste issues. Temporary water quality impacts from soil disturbances will be mitigated through the implementation of Best Management Practices (BMPs) per the Virginia BMP Field Guide (2009) and the Virginia BMPs For Water Quality Technical Manual (2011) for Forestry Management and the Virginia Erosion and Sediment Control Handbook (1992). The tree clearing will require installation of proper erosion and sediment control (E&SC) measures (such as proper silt fence and storm drain inlets) prior to the onset of land disturbing activities.

Alternative B is the preferred action and, if the stated mitigation measures are executed, would not have significant impacts on the human environment.

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

This environmental assessment (EA) has been prepared pursuant to the National Environmental Policy Act (NEPA) of 1969; regulations of the Council on Environmental Quality (CEQ) 40 C.F.R. parts 1500-1508; and Marine Corps Order (MCO) P5090.2A Ch. 3, which documents the US Marine Corps' (USMC) internal operating instructions on how to implement NEPA. This EA is intended to meet NEPA requirements for the construction of a Staging Area near Range 5 at Marine Corps Base Quantico (MCBQ).

CEQ regulations for implementing NEPA (40 C.F.R. part 1500) require documentation that succinctly describes the environment of the area or areas potentially affected by the alternatives being considered under the proposed action, and discusses the impacts in proportion to their significance.

This EA also satisfies 36 C.F.R. part 800.6(a) which states that a federal agency when presented with the potential of an adverse effect as a result of its undertaking must "develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize or mitigate adverse effects on historic properties."

1.1 Background

MCBQ and The Basic School (TBS) are proposing to construct a 13.4 acre staging area that will serve as a set up and practice range for Range 5. The location will be cleared and replanted with perennial vegetation that is suitable for Marine training.

1.2 Need for the Proposed Action

Range 5 is used by Marines roughly 110 times per year on average for mission and training purposes. TBS has too many squads utilizing the range each day for each squad to have a practice run and a live run. The stagings (practice runs) are currently conducted on a very small cleared area which does not accurately replicate a live range. This also increases the risk level on the squad's Operational Risk Assessment. Creating a Staging area will enable Marines to lower their Risk Assessment Category and will increase the safety of training for TBS students and staff.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative A - No Action

Under the no action alternative, the current conditions would remain the same and Range 5 would continue to function under its current training requirements.

2.2 Alternative B - Construction of a Staging Area near Range 5.

Under this alternative a set up and practice staging area would be constructed to the immediate south of Range 5 on SR-644. The proposed action location is summarized in Figures 2.1 and 2.2.

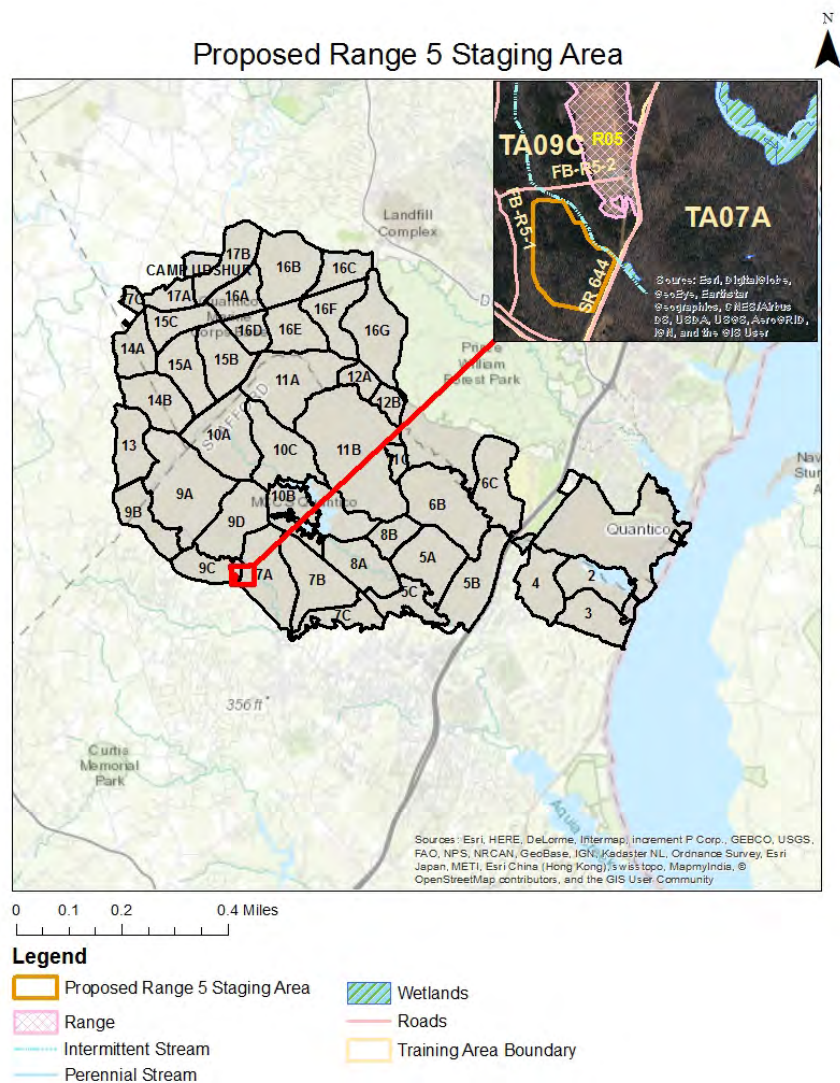


Figure 2.1

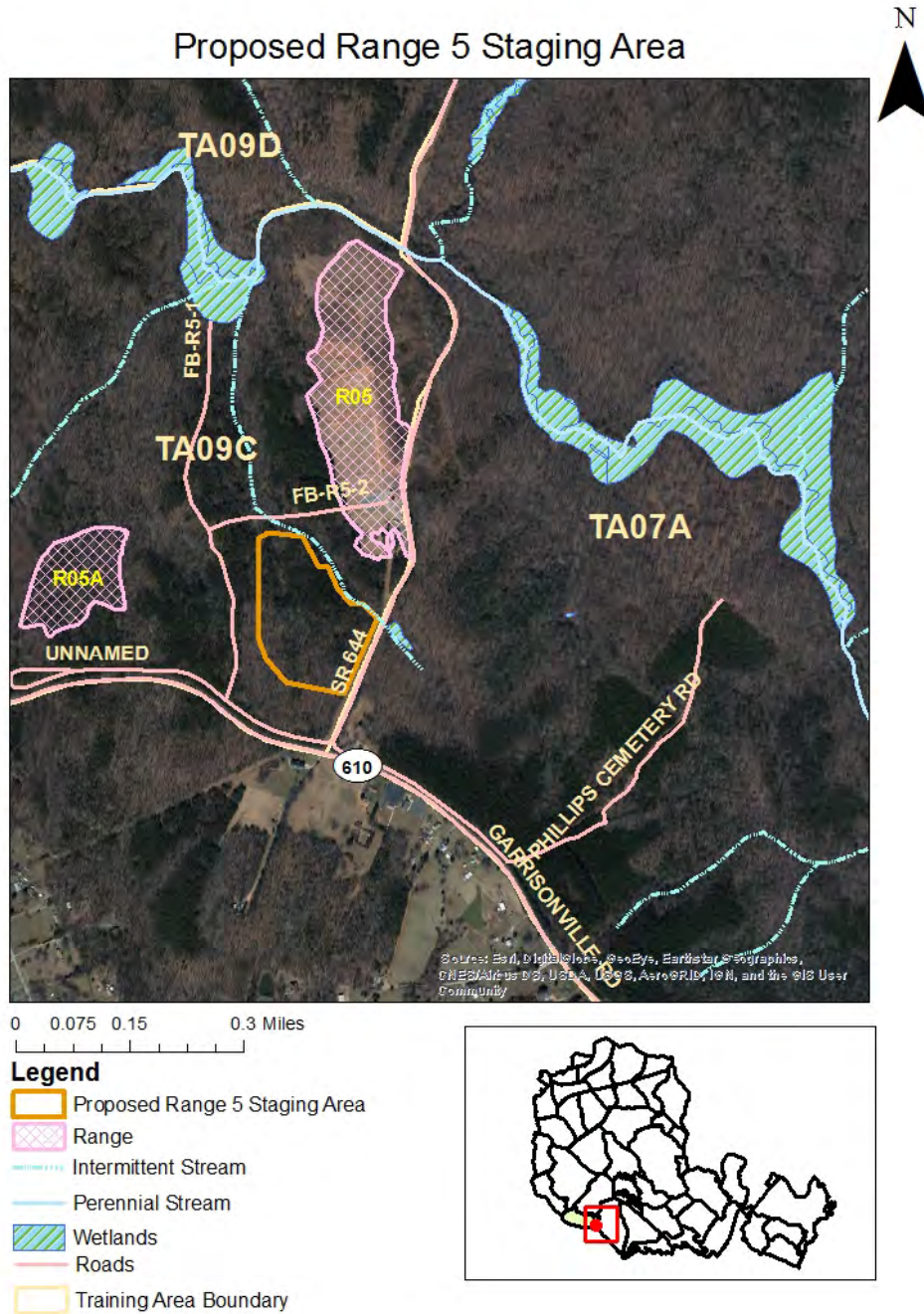


Figure 2.2

3.0 Existing Environmental Conditions

CEQ regulations for implementing NEPA (40 C.F.R. part 1500) require documentation that succinctly describes the environment of the area or areas potentially affected by the alternatives

being considered under the proposed action, and discusses the impacts in proportion to their significance.

Both alternatives under consideration for this proposal are located within TA 9C the Westside at MCBQ, in Stafford County, Virginia. The existing environmental conditions described in this section will be the same for all alternatives.

3.1 Land Use

MCBQ is divided into two areas; Mainside, 6,000 acres east of Interstate 95 and U.S. Route 1, and Westside (Guadalcanal), 53,200 acres west of the same highways. The proposed Range 5 Staging location would be initiated within the Westside portion of the base and is located in TA 9C. TA 9C is heavily forested, supports maneuver training and consists of three ranges: Range 5, Range 5A, and Range 6. The proposed action footprint consists of a wooded location at the immediate south of Range 5 and is located adjacent to SR-644. Range 5 serves as an Automated Infantry Squad Battle Course. This course is used to train and test teams and squads on the necessary skills needed to identify, engage and defeat moving targets in tactical scenarios. The range has a total of six firing points, bleachers and a control tower.

Range 5A is an inactive range that historically served as a small-arms firing range. Range 6 is currently inactive, however it is expected to be re-activated to support small arms training in the future. The most notable feature of this range is the Range 6 pond, a recreational fishing pond that is located on the northwest side of the range. The proposed Range 5 Staging area, TA 9C and its three ranges, are all located within the non-duded impact area of MCBQ.

3.1.1 Geology

The proposed action would occur within the Westside portion of the base, which lies in the Coastal Plain geologic region. The region consists of Mesozoic and Cenozoic marine sediments, some consolidated into sandstone and marl. The project area is specifically within the Patapsco formation, which dates to the Cretaceous Period at the end of the Mesozoic Era. It is comprised of sand and clay from shallow aquatic deposits, which cover Pre-Cambrian crystalline rock with a thickness of approximately 150 feet. These deposits are generally unconsolidated.

3.1.2 Soils

Three soil types are found within the proposed Range 5 Staging Area footprint. The Alluvial Land, wet (Ae) is found within the far northern and northeastern portions of the proposed action footprint near the intermittent stream. Ae consists of roughly 3.4% of the proposed action footprint. These soils are associated with floodplains, are a poorly drained loam soil, have slopes between 0-6%, and have a high coefficient of runoff. The Appling Fine Sandy Loam (AlB) is dominant in the central and southwest corners of the footprint. These soils are associated with hillslopes, are well-drained sandy-loam, and have a low runoff coefficient. They contain between 2-6% slopes and account for 26.1% of the soils within the proposed action footprint. The dominant soil type within the proposed action footprint is the Appling Fine Sandy Loam 6-15% slopes (AlC2). These soils are also associated with hillslopes, are a well-drained sandy loam, and have a moderate runoff coefficient. These soil are steep, consists of 6-15% slopes and comprise 70.5% of the soils within the proposed action footprint. The soil survey map and the soil types are summarized within Appendix A of this EA.

3.1.3 Topography

The terrain of the proposed Range 5 Staging Area consists of mostly undisturbed, natural landscapes with an intermittent stream that flows into Cannon Creek that lies near its northern boundary. The northern portion of the proposed action footprint that is near the intermittent stream, represents the lowest point of the site elevation at 270 ft. The footprint is characterized by a low gradient, gradually increases to 310 ft. in the central location of the footprint and reaches its highest elevation at the southern portion with a height of 320 ft. The topography of the site is summarized in Figure 3.3.

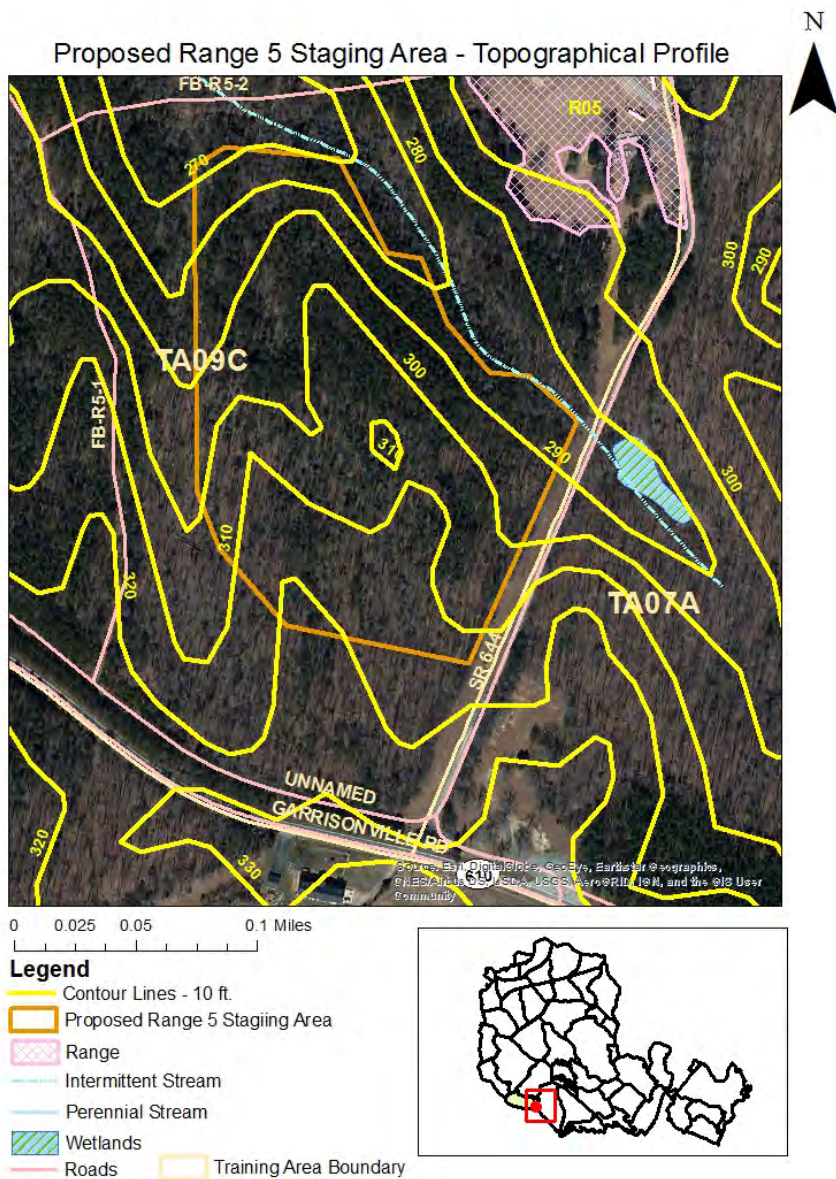


Figure 3.3

3.2 Water Resources

Due to the rugged upper Coastal Plain topography and proximity to various water bodies, activities conducted on the base could potentially affect the water resources of the area.

Activities in surface waters (including streams) and wetlands are regulated under numerous federal laws, regulations, and policies. The proposed action would be bound by the following:

- The Clean Water Act (CWA), 33 U.S.C. §1344 (Section 404) requires a permit from the US Army Corps of Engineers for the discharge of dredged or fill material in to "waters of the US", a term that includes most streams, wetlands, and ponds.
- Executive Order (E.O.) 11990, *Protection of Wetlands*, requires federal agencies to take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.
- Department of the Navy "no net loss" policy, for implementing E.O. 11990.

The Commonwealth of Virginia also regulates streams and wetlands that are considered "waters of the state" through a number of laws and provisions. Any action that requires a federal Section 404 permit may also require a water quality certification per CWA 33 U.S.C. §1341 (Section 401) from the Virginia Department of Environmental Quality (VDEQ) and, under certain circumstances, the Virginia Marine Resources Commission.

In 1988, Virginia enacted the Chesapeake Bay Preservation Act (CBPA), Code of Virginia, Title 10.1-Conservation, Chapter 21. This Act established a cooperative program between state and local governments to improve water quality in the Bay by requiring resource management practices in the use and development of environmentally sensitive land features. As defined by the CBPA, Resource Protection Areas (RPA) are buffer zones that include all areas within 100 feet of a tidal wetland, contiguous non-tidal wetlands, or perennial streams. Other areas are designated as Resource Management Areas (RMA). The RMA includes the 100-year floodplain, highly erodible soils, highly permeable soils, and non-tidal wetlands that are not part of an RPA. The Department of Defense (DoD) is a signatory to an agreement supporting the CBPA and its associated regulations and will comply to the maximum extent possible consistent with the military mission and budget constraints.

3.2.1 Surface Waters

The proposed Range 5 Staging Area lies adjacent to an intermittent stream. The stream occurs near the northern boundary of the proposed action footprint and flows into Cannon Creek which is located approximately .34 miles away (See Figure 2.2).

3.2.2 Wetlands

There are no wetlands that exist within the proposed action footprint according to Geographic Information Systems (G.I.S.) data from the National Wetlands Inventory (N.W.I.). There is a wetland that is located along the intermittent stream across from the site footprint on SR 644. The wetland is buffered by a forested landscape and is approximately 100 feet from the proposed action boundary (See Figure 2.2).

3.2.3 Floodplains

Executive Order 11988 (1977), *Floodplain Management*, requires federal agencies to take action to minimize occupancy and modification of floodplains. The order specifically prohibits federal agencies from funding construction in the 100-year floodplain unless no practicable alternative exists.

The area of the proposed Range 5 Staging Area site is depicted on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) number 5101540020E, panel 20 of 280. The FIRM shows that the proposed action site is located well outside of Flood Zone A (See Figures 3.2 and 3.3).

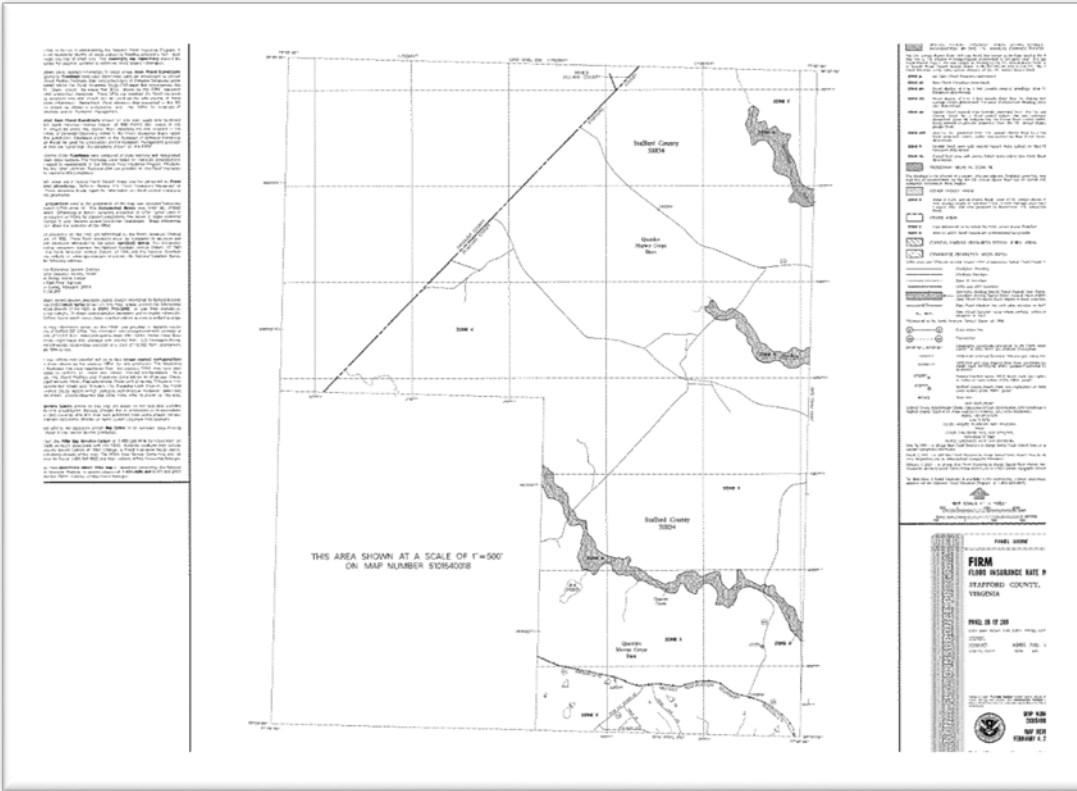


Figure 3.2

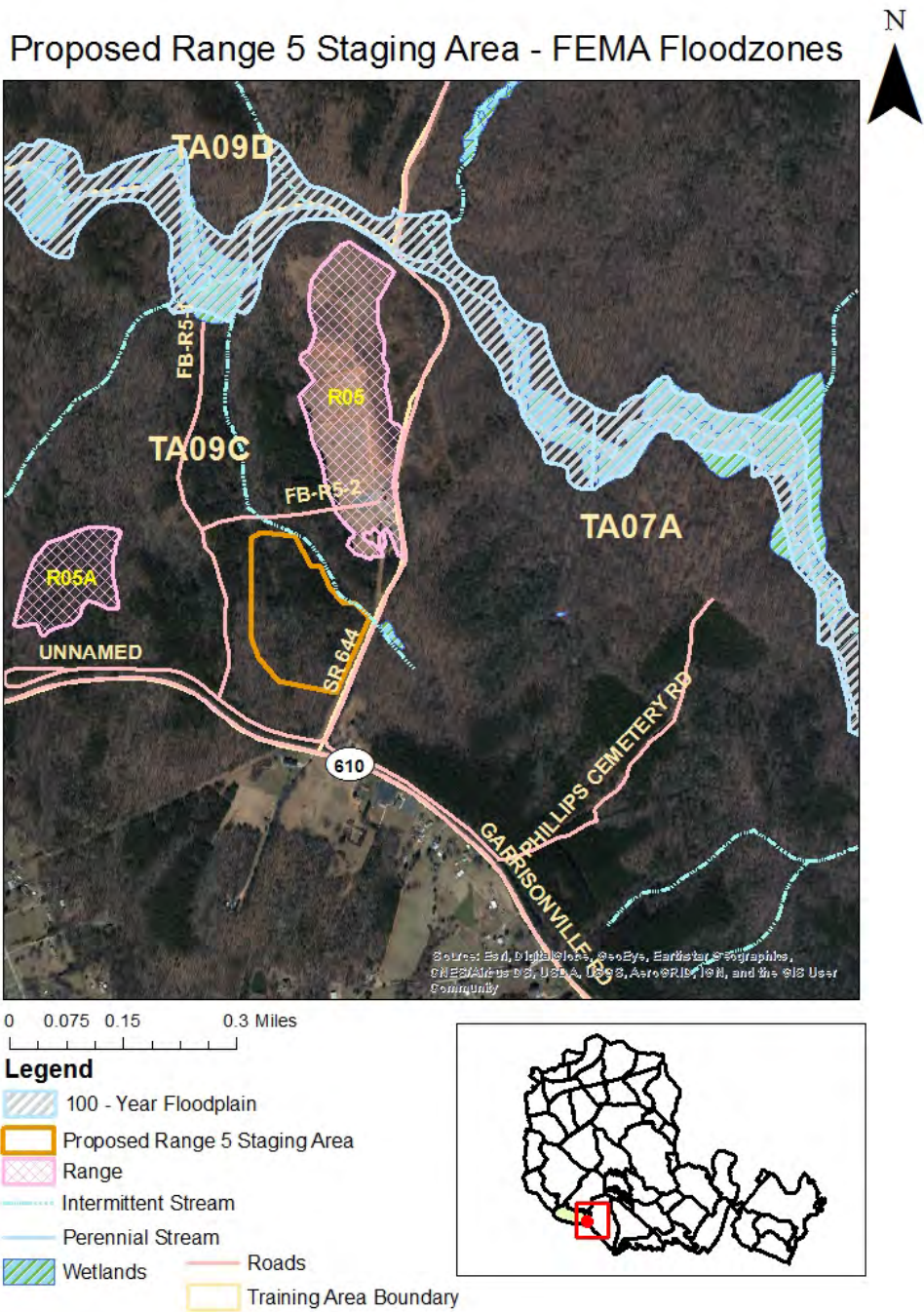


Figure 3.3

3.2.4 Groundwater

The Potomac Aquifer extends from New Jersey in the north, to North Carolina in the south, and eastward under the Chesapeake Bay. The MCBQ lies within this aquifer. In this aquifer water can be reached at depths between 200 and 350 feet. One of the largest surface recharge areas for the Potomac Aquifer exists in

Stafford County, near Interstate 95. No comprehensive studies of groundwater resources have been conducted at MCBQ to date.

3.2.5 Stormwater

The proposed action location is approximately .34 miles from Cannon Creek and within the Cannon Creek Watershed. The watershed occupies a total of 9,508 acres within the southern portion of MCBQ (See Figure 3.4).

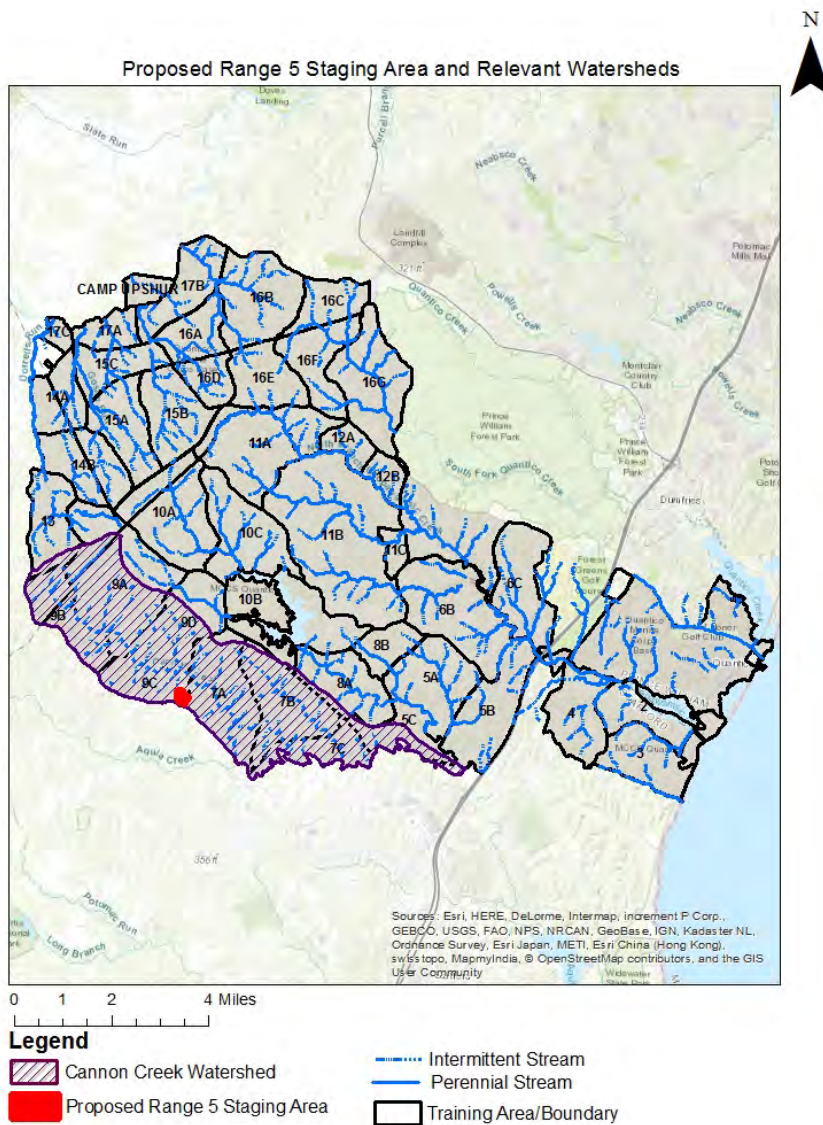


Figure 3.4

3.3 Biological Resources

3.3.1 Vegetation

The proposed action footprint consists of deciduous forested vegetation (See Figure 3.5). The areas surrounded by the site also consists of deciduous forested vegetation. The vegetation on Ranges 5 consists of grasses that are compatible for Marine training.

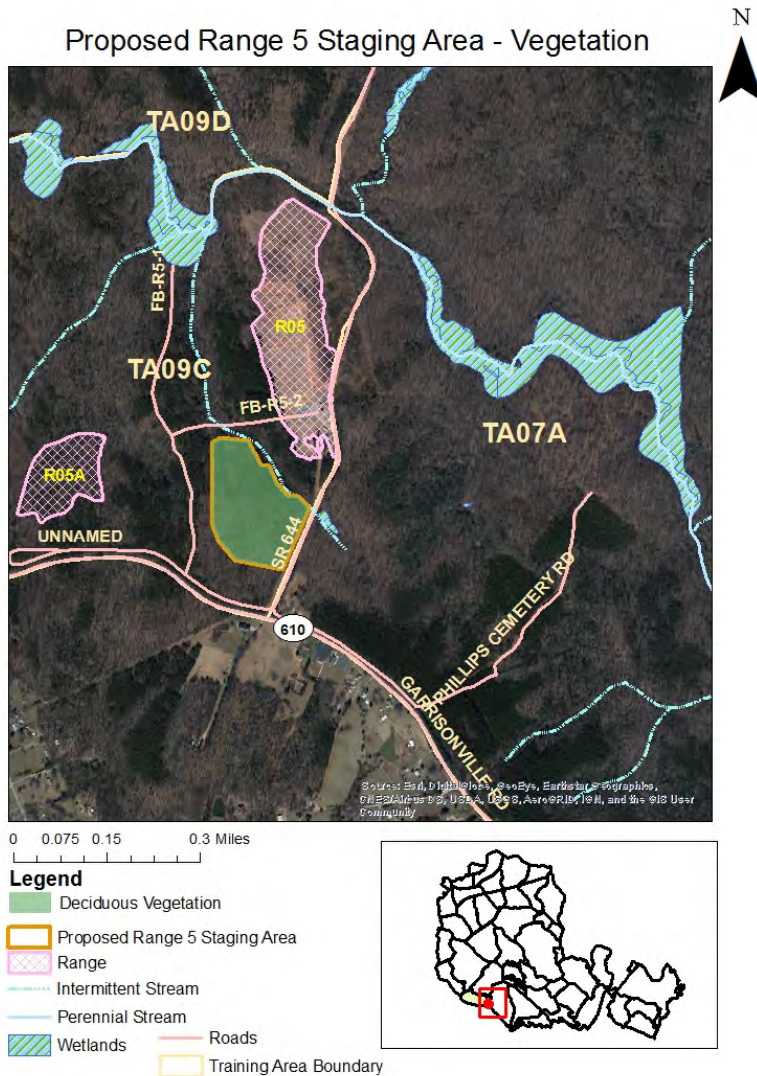


Figure 3.5

3.3.2 Wildlife

The base supports a wide variety of both game and non-game species and a diversity of wildlife habitat is available. Game

species include white-tailed deer, wild turkey, gray squirrel, cottontail rabbit and bobwhite quail. Non-game species include resident and migratory songbirds, raptors, and various reptiles, amphibians, and insects.

Migratory birds utilize a variety of habitats available throughout MCBQ including forestland, grassland, wetland, and riparian corridors.

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §701-12) protects all species covered by the four migratory bird treaties the United States signed with Canada, Mexico, Japan, and Russia. The MBTA prohibits taking (e.g., pursuing, hunting, shooting, wounding, trapping, capturing, or collecting, or attempting to pursue, hunt, shoot, wound, trap, capture, or collect, intentionally or unintentionally), killing, or possessing of migratory birds (including parts, feathers, nests, and eggs) unless permitted by the Secretary of the Interior. The United States Fish and Wildlife Service (USFWS) currently recognizes 832 species of migratory birds.

Per Executive Order 13186, Responsibilities of Federal Agencies to Migratory Birds (2001), the DoD and USFWS set forth a Memorandum of Understanding (MOU) to promote the conservation of migratory birds and their habitats. Habitat that would be considered critical to the natural history and/or life cycle of migratory birds is not located within the proposed Range 5 Staging Area footprint. Bald eagles, which are protected under the MBTA, are discussed within the threatened and endangered species/species of concern portion (3.3.3) of this EA.

3.3.3 Threatened and Endangered Species

The Endangered Species Act (ESA), 16 U.S.C. §1531 et seq., requires federal agencies to ensure that their actions will not jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of its critical habitat.

Two plant species on MCBQ are federally-listed as threatened or endangered species. These include Harperella (*Ptilimnium nodosum*) and small whorled pogonia (*Isotria medeoloides*).

Harperella is a federally-listed endangered plant species native to riverine habitats. This plant is only found in 13 areas ranging from Maryland to Georgia.

The small whorled pogonia (SWP) is a federally-listed threatened species. The SWP is a perennial plant that generally occurs on gentle to moderate slopes with eastern or northern exposures and prefers acidic sandy loam soils with low nutrient content.

Two animal species found on portions of MCBQ are federally-listed as endangered. They are the dwarf wedge mussel (*Alasmidonta heterodon*) and the Indiana bat (*Myotis sodalists*).

The dwarf wedge mussel is a small bivalve that lives in freshwater streams and requires highly oxygenated and silt-free waters.

The Indiana bat can be found over most of the eastern half of the United States. The bat spends winter hibernating in caves and occasionally in abandoned mines (hibernacula). During summer, the bats prefer to roost under the peeling bark of dead and dying trees.

The northern long-eared bat (*Myotis septentrionalis*) (NLEB) is also found on MCBQ. The NLEB is federally-listed as threatened. The bat spends winter hibernating in caves and mines (hibernacula). They prefer roosting sites with constant temperatures, high humidity, and no air currents. In summer, they prefer roosts under tree bark, in cavities or in crevices of both live and dead trees, and rarely in man-made structures such as barns or sheds (50 C.F.R. part 17). There are no known Indiana Bat or NLEB hibernacula on MCBQ; however both species were detected on the base in 2016.

The endangered Rusty-patched bumblebee (*Bombus affinus*) historically nests on occupied grasslands and tallgrass prairies. The bee has been reported in 13 states across the eastern half and upper Midwest of the United States, including Virginia.

The little brown bat (*Myotis lucifugus*) and tricolored bat (*Perymyotis subflavus*) are listed as state-endangered. Both species were detected on base during 2016.

The bald eagle, *Haliaeetus leucocephalus*, was removed from the Federal List of Endangered and Threatened Wildlife and Plants in 2007 due to population recovery. The bald eagle is still afforded federal protection under the MBTA (see Section 3.3.2) and the Bald and Golden Eagle Protection Act (BGEPA) of 1940, as

amended (16 U.S.C. §668-668d, 54 Stat. 250), and is listed as a species of concern in the USFWS Birds of Conservation Concern, 2008. The BGEPA requires a buffer of 660 feet around a nesting site. No bald eagle nesting sites have been observed near the proposed Range 5 Staging Area footprint.

MCO P5090.2A, Ch. 3 directs the USMC to comply with environmental requirements, protect the environment and human health, and enhance and sustain mission readiness, to include cooperating with the Commonwealth of Virginia to protect Virginia-listed rare species and to provide consideration of state-listed species during the NEPA process.

The Virginia Piedmont waterboatman, *Sigara depressa*, and the brook floater, *Alasmidonta varicose*, are two Virginia-listed endangered faunal species. Both species are water dependent. The Virginia Piedmont waterboatman is an insect that inhabits ponds and extremely slow moving streams. The brook floater is a bivalve that is found among boulders within gravel or sand.

3.4 Cultural Resources

Implementation of the proposed action must comply with the National Historic Preservation Act (NHPA) of 1966, (54 U.S.C. §300101 et seq.). Under the NHPA, consideration of historic preservation issues must be integrated into the early planning stages of project planning by federal agencies. Under NHPA 36 C.F.R. part 800 (Section 106), a federal agency is required to account for the effects of the proposed action on any district, site, building, structure, or object that is included or eligible for inclusion in the National Register of Historic Places (NRHP), prior to the expenditure of funds on the action. Under NHPA 54 U.S.C. §§306101(a) and 306102 (Section 110), the identification and evaluation of any cultural resources on federal property that meet the eligibility criteria of the NRHP is required.

Architectural historians with the U.S. Army Construction Engineering Research Laboratory (USCERL) conducted a survey of Quantico buildings between 1992 and 1994 (USCERL 1994). They identified significant historic buildings and landscapes on the base. Seven themes forming the historic context for the subsequently nominated NRHP Quantico Marine Corps Base Historic District (QMCBHD) include: First Permanent Construction, Aviation, Education, Industrial, Naval Clinic, African American

Barracks, and Lustron Housing. The proposed action location is not within the QMCBHD and there are no cultural resource sites within the proposed Range 5 Staging Area footprint.

3.5 Air Quality

National Ambient Air Quality Standards

The U.S. Environmental Protection Agency (EPA) defines ambient air as "that portion of the atmosphere, external to buildings, to which the general public has access" (40 C.F.R. part 50). In compliance with the Clean Air Act (CAA) (42 U.S.C. §7401 et seq.) the EPA promulgated the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM), ozone, nitrogen dioxide (NO_x), and lead. States are required to develop a State Implementation Plan (SIP) to attain and maintain the NAAQS, with specific requirements for areas that do not meet the NAAQS, called nonattainment areas. The location of the proposed action is within the Metropolitan Washington (DC) Region that has been designated as a moderate non-attainment area for the 8-hour ozone NAAQS and a general non-attainment for PM_{2.5}. NO_x and volatile organic compounds (VOCs) are precursors to ozone formation and are regulated to control ozone pollution.

General Conformity

To ensure that actions taken by federal agencies in a nonattainment area do not interfere with a state's plan for attainment of the NAAQS, EPA promulgated the General Conformity rule [CAA section 176(c)(4)]. The General Conformity rule requires federal actions, whose emissions exceed *de minimis* thresholds of criteria pollutants and their precursors, to undergo a Conformity Determination. A Conformity Determination is a detailed analysis the action's impact on regional air quality. *De minimis* levels in the DC region are:

- NO_x: 100 tons per year (tpy)
- VOC: 50 tpy
- PM_{2.5}: 100 tpy

An Applicability Analysis is the first step in the Conformity process, used to determine if a full Conformity Determination must support the action. Proposed actions may be exempt from a Conformity Determination by two means:

1. If EPA identifies the action in 40 C.F.R. part 93.153(c)(2) as resulting in no emissions increase or an increase that is clearly *de minimis*.
2. If emissions from the action, including construction and post construction activities, are calculated and determined to fall below the *de minimis* emission rates.

If the Conformity Analysis indicates that the action falls into one of the listed actions, or the emissions are below *de minimis* thresholds, no further action is necessary. For actions that exceed *de minimis* thresholds and are not exempt, a Conformity Determination is required.

A Conformity Determination requires detailed direct and indirect emissions estimates, dispersion modeling analysis, and mitigation of air quality impacts, and an opportunity for public comment prior to approval.

Virginia SIP Regulations

Virginia's SIP includes a number of broadly applicable regulations as well as process-specific regulations for existing sources intended to ensure continued progress towards attainment of all NAAQS.

Cutback asphalt is prohibited except when stockpile storage greater than one month is necessary, when used or applied during the months of November through March, or when used or applied as a penetrating prime or tack coat, as per 9 VAC 5-45, Article 7 of VDEQ's air pollution regulations.

New Source Review Permitting

New Source Review (NSR) is a federally mandated program, implemented by the States, that requires construction or modification of regulated stationary sources undergo a preconstruction permitting process. NSR is used to define what equipment may be installed, pollution controls that may be required, operating parameters, and notification, recordkeeping, and reporting requirements.

The stringency of an NSR permit depends on the size of the stationary source and the region in which it is located. Permitting programs exist for both major and minor sources located in NAAQS attainment or nonattainment areas.

- Minor New Source Review (Minor NSR). Minor NSR permits are required when a source does not meet the definition of a major source, but is large enough to interfere with a state's plan for attaining or maintaining the NAAQS. Minor NSR permits may also be used to limit emissions from a project that would otherwise be subject to major source permitting.
- Prevention of Significant Deterioration (PSD). PSD permits are issued for new major sources of air pollution or major modifications to existing major sources of air pollution in a NAAQS *attainment* area. PSD permits require application of Best Available Control Technology (BACT), dispersion modeling, and public notification and comment periods.
- Nonattainment New Source Review (N-A NSR). N-A NSR permits are issued for new major sources of air pollution or major modifications to existing major sources of air pollution in a NAAQS *nonattainment* area. N-A NSR requires application of Lowest Achievable Emissions Rate (LAER) and public notification and comment periods. In addition, facilities are required to offset the potential increase in emissions with a greater reduction in actual emissions elsewhere in the region to ensure improvement of the local air quality.

A case-by-case review of each new stationary source or modification is required to determine which permitting program is applicable. Generally, NO_x from fuel combustion is the limiting pollutant at MCBQ. Since MCBQ is a major source of NO_x pollution in an ozone nonattainment area, any project that has a potential to emit (PTE) greater than 40 tpy of NO_x will be subject to N-A NSR permitting. A project with a PTE greater than 10 tpy but less than 40 tpy of NO_x will be subject to Minor NSR permitting. Projects with a PTE less than 10 tpy of NO_x are typically exempt from preconstruction permitting requirements (however, they may still be considered significant equipment in a Title V operating permit).

Title V Permitting

Generally, major sources of pollution are required to obtain federal operating permits issued under Title V of the CAA by either the EPA or the state regulatory agency. The primary purpose of a Title V permit is to improve compliance at a source by consolidating all requirements into a single document. Title V permits are reviewed and reissued on a 5 year cycle. While some changes to equipment may occur as "off-permit" changes and

may be incorporated into the next permit renewal, most NSR permit actions require modification of the Title V permit within 12 months.

In the DC ozone nonattainment area, any source with a NO_x PTE greater than 100 tpy is a major source and must apply for a Title V Permit within 12 months of being designated such. The proposed project would occur entirely within Prince William County, which is an ozone attainment area.

The base's NO_x PTE is well above 100 tpy. The base currently operates under a Title V permit issued by the VDEQ on 2 September 2003. Renewal applications are pending.

3.5.1 Climate Change

Greenhouse Gas (GHG) reporting and permitting are the newest broad scale programs under the CAA. In 2009, the EPA determined that GHGs have a detrimental effect on human health and the environment and began developing regulatory programs to limit the emission of GHGs.

Greenhouse gases (GHG) are atmospheric compounds that contribute to the greenhouse effect. GHGs include CO₂, CH₄, and N₂O, and fluorinated gases. The greenhouse effect is a natural phenomenon that causes heat to be trapped within the lowest portion of the earth's atmosphere creating a wide range of environmental concerns referred to as climate change. Climate change is associated with rising global temperatures, sea level rise, changing weather patterns, changes to local and regional ecosystems including the potential loss of species, longer growing seasons, and shifts in plant and animal ranges. Most GHGs occur naturally within the atmosphere but scientific evidence indicates a trend of increasing global temperature over the past century due to a combination of natural occurrences and an increase in GHG emissions from human activities (Intergovernmental Panel on Climate Change, 2007).

According to the Quadrennial Defense Review Report of February 2010, the DoD has recognized that climate change will affect the DoD operating environment, roles, and missions undertaken; furthermore, adjustments due to climate change impacts on facilities and military capabilities will be necessary. The DoD has made a commitment to foster efforts to assess, adapt to, and mitigate the impacts of climate change. Specifically, the DoD has leveraged the Strategic Environmental Research and Development Program, a joint effort among the DoD, the

Department of Energy, and the EPA, to develop climate change assessment tools.

GHG Reporting

In October 2009, the EPA promulgated the GHG Reporting Rule in 40 C.F.R. part 98. The rule establishes mandatory reporting requirements for facilities that fit into any of three applicability classifications.

A facility may be required to report GHG emissions if it falls into an "all-in" source category defined in 40 C.F.R. part 98.2(a)(1). One of these categories is Municipal Solid Waste (MSW) Landfills that emit more than 25,000 metric tons of carbon dioxide equivalent (CO₂e) in a year and accepted waste after 1 January 1980. The base has three MSW landfills, two of which accepted waste after 1 January 1980.

A facility may also be required to report if it falls into a second set of defined source categories and emits more than 25,000 metric tons of CO₂e in a year. The second set of categories includes production facilities outlined in 40 C.F.R. part 98.2(a)(2). The base does not operate any of these facilities.

Finally, a facility may be required to report if it does not meet either of the first two requirements, but it does operate stationary fuel combustion equipment with an aggregate rated heat input capacity of at least 30 MMBtu/hr and the facility emits more than 25,000 metric tons of CO₂e in a year from these sources. The aggregate rated heat input capacity of MCBQ is well in excess of 30 MMBtu/hr.

The base's MSW landfills and stationary fuel combustion equipment emissions are evaluated annually to determine applicability of Part 98. The most recent calculations demonstrate that, based on 2013 data, Part 98 reporting requirements do not apply to the base. As of 2013, base-wide CO₂e emissions from stationary fuel combustion equipment totaled 18,658 tons.

GHG Permitting

The NSR and Title V permitting programs apply to GHGs if a facility is subject to those programs for other pollutants. While traditional permitting thresholds for NSR and Title V technically apply to GHGs, actual application of those

thresholds has been found impractical to use as thresholds for GHGs. In response, EPA has used its discretion to increase the thresholds under those programs for GHGs so that excessive GHG regulation and controls is avoided. The current threshold for significant emissions increases of GHGs is 75,000 TPY of CO₂e or more, and the Title V threshold for GHGs is 100,000 TPY of CO₂e or more. If GHG emissions are included in any NSR permit issued to MCBQ, then BACT and other NSR requirements will apply and be reflected in the MCBQ Title V permit.

On 23 June 2014, the U.S. Supreme Court issued a decision that said EPA could not require a source to obtain a PSD or Title V permit on the basis of GHG emissions alone. However, sources that must obtain PSD or Title V permits based on regulated NSR pollutants may still be required to control GHG emissions by application of BACT.

Pending further court action, a new stationary source at MCBQ may be subject to BACT for GHGs if it causes a significant emissions increase of a regulated NSR pollutant and also an emissions increase of 75,000 CO₂e or more.

3.6 Noise

Noise, often defined as unwanted sound, is one of the most common environmental issues associated with military installations. The major sources of noise at MCBQ include aircraft, artillery, small arms, explosives, vehicles, heavy equipment, and machinery.

Existing noise levels in the proposed action location come from Range 5 as well as automobile traffic on Garrisonville Rd. (Virginia State Route 610). Other noise contributions come from temporary construction activities, but these are minor. Ordnance used in live and simulated fire exercises, is generally conducted at ranges that are currently on the Westside portion of MCBQ where the proposed actions will be occurring.

3.7 Environmental Justice

Executive Order (EO) 12898, *Federal Actions to address Environmental Justice in Minority Populations and Low-income Populations*, was issued in 1994. This order directs agencies to address environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate

placement of any adverse effects from federal policies and actions on these groups.

EO 13045, *Protection of Children from Environmental Health and Safety Risk*, was issued in 1997. This order requires agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children.

3.8 Hazardous Materials/Waste

MCBQ is located in three counties. According to the United States EPA's Map of Radon Zones, Stafford County is located in Zone 1 and Prince William and Fauquier Counties are located in Zone 2. Zone 1 counties have a predicted average radon screening level greater than 4 picocuries per liter (pCi/L), and Zone 2 counties have a predicted average radon screening level between 2 and 4 pCi/L. Historic data and geologic conditions indicate there is a high risk of radon being present in buildings at MCBQ above the action level of 4 pCi/L.

Many portions of MCBQ consist of historic munitions impact sites. The proposed action locations are within a non-duded impact area. However, excavation activities may expose lead or other munitions constituents during excavating activities.

3.9 Solid Waste

Reports of waste generated (including recycling) including material type (construction debris, concrete, scrap metal, used oil, etc.), tons, disposal destination, and disposal cost shall be reported on the attached Waste Management Plan and submitted to the NREA Branch within 30 days of the close of the project, and no later than October 15 of the respective calendar year to be included in annual report submissions.

Executive Order 13514, *Leadership in Environmental, Energy, and Economic Performance*, 2009, calls for meeting or exceeding fifty percent diversion of non-hazardous solid waste and construction and materials and debris from landfills by fiscal year 2015.

3.10 Recreation

The proposed Range 5 Staging Area is located in within TA9C just south of Range 5. Currently, this area is utilized for hunting.

Access to hunting and other recreational activities will be enhanced by the Perimeter Trail once this project is completed. There are trails located near the proposed action location, however, they have not been upgraded or utilized for many years. Although off road vehicles are not permitted at MCBQ, individuals seeking recreational opportunities have utilized these vehicles in this location.

3.11 Military Training

The proposed action footprint is located within the non-dudded impact area of MCBQ just south of Range 5. Range 5, which includes its Automated Infantry Squad Battle Course, Range 5A and Range 6 both of which are currently inactive, are the three ranges near the footprint. Range 5 is the only Range in the TA that is currently active but is very heavily utilized by TBS.

4.0 ENVIRONMENTAL CONSEQUENCES

The CEQ regulations implementing NEPA (40 C.F.R. part 1500) require discussion of the impacts in proportion to their significance within NEPA documentation. The affected environment under the proposed action alternative ranges from site-specific physical and natural resources to broader regional concerns (i.e., air quality variables, noise, infrastructure, socioeconomic conditions, community facilities and services, transportation and traffic).

This section describes the anticipated direct, indirect, and cumulative environmental impacts of the no action alternative and the action alternative of establishing a Staging area south of Range 5.

Alternative A is no action and Alternative B is the proposed action.

4.1 Land Use

Impact of Alternative A: Alternative A would not be expected to impact the current geologic, topographic, or soil conditions at MCBQ or the surrounding area.

Impact of Alternative B - Construction of the Range 5 Staging Area: Alternative B would not have a significant effect on the

Land-Use in TA9C, Range 5 or any other nearby training facilities.

Neither of the alternatives would be expected to significantly change or affect the geology of the area, nor would they impact the topography of the base.

To prevent the loss or movement of soils from the disturbed areas, E&SC measures would be implemented during construction. Approximately 13.4 acres of land would be disturbed to implement Alternative B however, the site would be re-planted with perennial vegetation compatible with Marine Corps training. With implementation of proper E&SC measures, the action alternative is not expected to significantly impact on-site or area soils. E&SC plans and stormwater pollution prevention plans (SWPPP) are required to be submitted to the Water Program Manager, NREA Branch, MCBQ at least 70 days prior to work starting on the project.

4.2 Water Resources

Potential impacts to the water resources were assessed based on the water quality, hydrology, surface water and wetlands, groundwater, and flooding potential in the project area.

Impact of Alternative A: It is expected that impacts to water resources would remain the same if no action is taken.

Impact of Alternative B - Construction of the Range 5 Staging Area: The action alternative, Alternative B, would clear approximately 13.4 acres of native vegetation; however, the site would be re-planted with perennial vegetation to replace it. During the removal, a 50 ft. setback would be maintained from nearby streams. Re-planting of vegetation would allow this surface to remain stable and stormwater velocity would not significantly change. Impacts to water quality would remain the same.

No wetlands or surface waters will be directly affected through filling or alteration of hydrology. Potential water quality impacts from soil disturbances will be mitigated through the implementation of Best Management Practices (BMPs) per the Virginia BMP Field Guide (2009), the Virginia BMPs For Water Quality Technical Manual (2011) for Forestry Management and the Virginia Erosion and Sediment Control Handbook (1992). The tree clearing project will require installation of proper E&SC

measures (such as proper silt fence and storm drain inlets) prior to the onset of land disturbing activities.

The proposed action alternative would require no fill within the 100-year floodplain nor will it impact surface waters or groundwater. There is a small wetland located on the eastern side of SR-644 from Alternative B however it is 100 feet from the site footprint and not within the footprint itself. Alternative B will not impact, fill or alter any wetlands.

4.3 Biological Resources

Impact of Alternative A: Implementation of the no action alternative, Alternative A, would not have a significant impact on vegetation, wildlife, or threatened or endangered species.

Impact of Alternative B:

No colonies of SWP were found within the proposed action location. There was suitable habitat found in a few small areas but most of the proposed action footprint did not have suitable SWP habitat.

The dwarf wedge mussel and harperella are not found in areas that would be affected by implementation of Alternative B. There is no suitable habitat for either species within the proposed action footprint.

The endangered Rusty-patched bumblebee has not been located on MCBQ and the probability of the species being found within the action alternative footprint is low.

In 2016, the Indiana Bat and NLEB were detected on base however they were not detected in TA9C. In order to reduce impacts to both the NLEB and Indiana bat, the USFWS has implemented time of year restrictions. These restrictions implemented by USFWS mandates that no trees greater than 3 inches in diameter at breast height may be removed between 15 April and 15 September. As a result, the proposed action will not have an adverse effect on the NLEB or Indiana Bat

Although, the Tri-Colored and Little Brown bats have been detected on MCBQ and in TA9C, there are no known summer roosts, maternity colonies or winter hibernacula for these species on the base according to the Virginia Department of Game and Inland Fisheries. If there is a maternity colony or roost for either

species discovered while implementing the proposed action, the project proponent must cease all activity and contact NREA.

Due to the scope of work and the required BMPs to protect water quality, there is no potential for the action alternative to adversely affect threatened and endangered species, or habitats used by these species. The proposed Range 5 staging area would have no adverse effects on wildlife (including migratory birds) or wildlife habitat.

A timber assessment was completed by the NREA Forestry program on 6 July 2017 to ensure that the government is reimbursed at fair market value for all merchantable timber within the proposed action footprint. The results of that assessment is located in Appendix D.

4.4 Cultural Resources

Impact of Alternative A: This alternative would have no effect upon the NRHP-eligible QMCBHD. There are no NHPA, NRHP sites or additional Archaeological sites that would be impacted as a result of Alternative A.

Impact of Alternative B: The 2011 Programmatic Agreement with the Virginia State Historic Preservation Officer (SHPO) and MCBQ states that if a project is occurring outside of a historic district or viewshed, consultation may be streamlined. The proposed action occurs outside of the QMCBHD and its viewshed. As a result, no formal consultation with the Virginia SHPO was necessary. There are no archaeological sites within the proposed action footprint (See Appendix C). The proposed Range 5 Staging Area would have no impacts on sites associated with the NHPA, NRHP or other archaeological sites (See Appendix C).

For excavations permitted where there are no known archaeological sites or cemeteries, caution must still be used by contractors. Some areas are urban terrain and have been significantly modified or disturbed. However, there may be undisturbed soil zones encountered adjacent to or under previous disturbances/fill.

The base Archaeologist, NEPA Section (703-432-6781/0519) immediately if artifacts (e.g., metal tools, arrowheads, etc.) appearing to pre-date the 20th century or unusual soil zones are encountered during excavation.

In the event there are any unexpected discoveries of potential human remains (e.g., bones or bone fragments), work must be halted or diverted to other areas until appropriate measures are taken. Contract Project Managers must be informed that any human remains encountered are protected by state and federal law. The following procedures must be followed:

- Halt work at the location leaving remains in place and any associated features and objects
- Notify base Archaeologist/NEPA Section per Section 7.0 of this EA
- Redesign project to avoid remains, if possible
- The base Archaeologist/NEPA Section will contact the SHPO, and if remains are Native American will contact tribe(s)
- Removal of remains requires a permit from the SHPO, including the participation of a skeletal biologist or physical anthropologist, and plans to make appropriate notifications to possible descendants/relatives and other measures in accordance with state law and Advisory Council on Historic Preservation (ACHP) guidelines

4.5 Air Quality

Impact of Alternative A: The no action alternative would not have an impact on air quality.

Impact of Alternative B: MCBQ is located in a moderate ozone non-attainment area within the Ozone Transport Region, and in a PM_{2.5} non-attainment area. The pollutant *de minimis* criterion for General Conformity evaluations is 50 tons per year (tpy) for volatile organic compounds (VOC), 100 tpy for NO_x, 100 tpy for PM_{2.5}, and 100,000 tpy for CO₂. Sources of these pollutants associated with Alternative B would include emissions from construction equipment, crew commuting vehicles, fugitive dust, and from use of other fuel-burning equipment. Projected emission from the action alternative will fall within the *de minimis* levels.

No additional new air emissions sources are currently being proposed with Alternative B. If this changes, specifications for the new emissions source are required to be submitted to the NREA Air Program manager for review.

General Conformity

The General Conformity Rule ensures that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet the NAAQS.

General Conformity under the Clean Air Act, Section 1.76, has been evaluated for the proposed project according to the requirements of MCO 5090.2A CH 3 and 40 CFR 93 Subpart B. The requirements of this rule are not applicable to this project because the total direct and indirect emissions from this project have been estimated at 4.88E-01 tons NOx and 3.43E-02 tons VOC. These levels are below the conformity threshold value of 50 tpy VOC and 100 tpy NOx, established by 40 CFR 93.153(b), for a Non-Attainment Area located in an Ozone Transportation Region (See Figure 4.5.1).

			PROJECTED ACTUAL EMISSIONS						
			VOC	CO	NOx	PM	PM 10	CO ₂	SO ₂
CONSTRUCTION EQUIPMENT	Quantity	Usage	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)
Chippers/Stump Grinders (Com.)	1	160	15.81	74.04	168.82	17.43	7.84	17,539.86	35.47
Crawler Tractor/Dozers	1	160	37.87	112.33	302.07	32.73	14.73	29,961.89	60.59
Leafblowers/Vacuums (Com.)	2	160	3.10	17.27	21.16	2.21	1.00	2,350.33	4.75
			VOC	CO	NOx	PM	PM10	CO ₂	SO ₂
HIGHWAY VEHICLES	Vehicle-Days	Miles/Day	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)
Light Heavy Duty (Diesel)	360	60	7.91	36.57	234.75	1.71	0.77	24,714.16	0.00
Heavy Heavy Duty Tractor (Diesel)	180	60	3.97	21.32	248.95	5.23	2.35	38,462.15	0.00
LAND CLEARING EMISSIONS						PM	PM10		
						(lbs)	(lbs)		
						1,040.00	468.00		
TOTAL PROJECTED EMISSIONS (tons)			3.43E-02	1.31E-01	4.88E-01	5.50E-01	2.47E-01	5.65E+01	5.04E-02
<i>Notes:</i>									
<i>RSM means Crew B-7 x 20 days for tree removal.</i>									
<i>Substituted leafblower emissions for chainsaw emissions.</i>									
<i>HHD Tractors for equipment delivery and debris haul away.</i>									

Figure 4.5.1

New Source Performance Standards

The proposed action is potentially subject to the following NSPS regulation:

- 40 C.F.R. 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII - Standards of Performance for Stationary
Compression Ignition Internal Combustion Engines

The proposed action includes the addition of a diesel-fueled emergency generator. The engine must be certified by EPA to meet the emissions standards for new, non-road, compression-ignition engines in 40 C.F.R. 60.4202, for all pollutants, for the same model year and maximum engine power. The engine certification and emissions data must be provided to the NREA Branch before entering a purchasing agreement.

The engine must use ultra low sulfur (15 ppm max) diesel fuel with either a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent. Fuel supplier certifications are required.

The engine must be equipped with a non-resettable hour meter. The engine and control device (if applicable) must be installed and maintained in accordance with manufacturer's written instructions. The engine may be operated up to 100 hours per year for maintenance and testing purposes. Total hours of operation, with maintenance hours separated, must be provided to NREA on a monthly basis after installation.

Special restrictions apply to emergency generators that are operated in nonemergency conditions, such as in a demand-response program. Prior to entering such an agreement, the operator must coordinate with NREA to determine additional requirements that will apply.

National Emission Standards for Hazardous Air Pollutants

The proposed action is subject to the following NESHAP regulations:

- 40 C.F.R. 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
- 40 C.F.R. 63, Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

Subpart ZZZZ - National Emission Standards for Hazardous Air
Pollutants for Stationary Reciprocating Internal Combustion
Engines

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

Virginia SIP Regulations

The proposed action is subject to the following Virginia regulations:

- 9 VAC 5-40, Article 1 - Visible Emissions and Fugitive Dust/Emissions

Visible Emissions and Fugitive Dust/Emissions

No owner or other person shall cause or permit any materials or property to be handled, transported, stored, used, constructed, altered, repaired or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but are not limited to, the following:

1. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land.
2. Application of asphalt, water, or suitable chemicals on dirt roads, materials stockpiles and other surfaces which may create airborne dust; the paving of roadways and maintaining them in a clean condition.
3. Installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations.
4. Open equipment for conveying or transporting materials likely to create objectionable air pollution when airborne shall be covered or treated in an equally effective manner at all times when in motion.

5. The prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.

•9 VAC 5-130 - Open Burning

Open burning is prohibited except for those exceptions allowed by 9 VAC 5-130, - Regulation of Open Burning.

NREA should be consulted prior to any open burning.

4.5.1 Climate Change

CEQ's NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions states that "if a proposed action would be reasonably anticipated to cause direct emissions of 27,563 tpy (25,000 metric tons) or more of CO₂-equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public." These recommendations are consistent with the EPA's Mandatory Reporting of Greenhouse Gases rule (40 C.F.R. part 98) (2009), which applies to all stationary sources emitting 27,563 tpy or more of GHG emissions. The rule allows for data collection to help shape future climate change policies and programs but does not require control of GHGs.

Impact of Alternative A: The no action alternative would not cause an increase in greenhouse gas emissions and would not have new effects on climate change.

Impact of Alternative B: The proposed project will not add new emission sources. Tree-clearing emissions would be short in duration and are not covered by the Mandatory Reporting of Greenhouse Gases rule as the intent is to track and regulate stationary sources. This project would not have any long term changes in stationary or mobile emission sources or landfill operations. In compliance with the CEQ's and EPA's guidance, quantitative analysis of CO₂ equivalents is not required for the proposed action.

GHG Reporting

Actual emissions from the proposed action are not expected to cause the total GHG emissions from MCBQ to exceed mandatory reporting thresholds.

GHG PSD Permitting

The proposed action does not involve the construction of any new stationary source or any project (which includes any addition or replacement of an emissions unit, any modification to an emissions unit or any combination of these changes), or the reduction of any stack outlet elevation at any stationary source. Therefore, GHG PSD permitting regulations do not apply.

GHG Title V Permitting

Actual emissions from the proposed action are not anticipated to cause the GHG PTE of the entire base to exceed 100,000 tpy, so the base will remain exempt from Title V permitting requirements for GHGs.

4.6 Noise

Impact of Alternative A: The no action alternative would not impact existing noise levels on the base or the surrounding area.

Impact of Alternative B: Implementation of the proposed action would generate short-term, temporary noise from the tree removal operations (chainsaws, trucks, and worker vehicles). The proposed action alternative would not have a permanent increase on noise levels. Noise associated with the tree removal activities under Alternative B would be temporary.

4.7 Environmental Justice

Impact of Alternative A or B: Implementing either of the proposed alternatives would not be expected to significantly impact the socioeconomics or create disproportionately high and adverse human health or environmental effects to minority, low-income populations, or children at MCBQ or in the surrounding area.

This project will have temporary minor impacts such as noise created by tree removal activities, and these impacts will not disproportionately affect minority, low-income populations, or children. Best management practices such as dust management

would also be employed to eliminate or keep temporary environmental nuisances to a minimum.

4.8 Health/Safety and Munitions Response Program

Impact of Alternative A or B: The implementation of either the No Action Alternative or the Proposed Action will have no effect on health, safety or due to the presence of UXO's or other munitions.

4.9 Hazardous Materials/Waste/Solid Waste

There is no adverse impact from hazardous materials/waste or solid waste anticipated with this project.

Impact of Alternative A: This alternative would have no effect on general procedures and practices for hazardous material removal, hazardous waste management, or solid waste management at MCBQ.

Impact of Alternative B: The Action Alternative would result in construction demolition debris (CDD) and waste. Reports of waste generated (including recycling) including material type (CDD, concrete, scrap metal, used oil, etc.), tons, disposal destination, and disposal cost shall be reported via the Construction Waste Management Report to NREA within 30 days of the close of the project, and no later than October 15, to be included in annual report submissions (see Appendix E). All spoils and debris generated by the operation shall be transported off base and disposed of in accordance with all federal, state, and local regulations.

The contractor is responsible for coordinating all solid waste disposal at a landfill that meets all Federal, State, and local regulatory standards. The contractor will support the solid waste diversion philosophy outlined in E.O. 13514 by recovering/recycling.

Neither alternative would have an effect on general procedures for removal of hazardous materials and hazardous waste management at MCBQ. No hazardous materials would be introduced under either of the alternative, however the following guidance must still be adhered to:

According to the Marine Corps Order 5090.2A Ch. 3, Chapter 10, Section 2, Paragraph 10221:

"All efforts must be made to ensure that Marine Corps' projects are not constructed on contaminated sites. However, there may be times when the project is being planned or is underway and contamination is discovered.

1. If contamination is discovered during the planning stage, Naval Facilities Engineering Command (NAVFAC) can investigate and determine the need for clean up using Environmental Restoration Program, Navy (ER,N) funds and following environmental restoration (ER) procedures. However, the site investigation/clean-up must compete with other ER sites based on risk management. In most cases, this will take several years and the site may not be available in time for the project.

2. If contamination is discovered during construction and it is Defense Environmental Restoration Program (DERP) eligible, NAVFAC can carry out the site investigation/cleanup using ER,N funds. However, the site will compete with other ER sites based on risk management. If ER,N funding is not available in time to meet the construction schedule, the installation must use project funds to investigate/clean up the site. If neither ER,N nor project funding is available in time to meet the construction schedule, the installation must stop the project altogether or re-site it. An installation does not have an option to pay for any DERP-eligible work with installation Navy Operations and Maintenance (OM,N) funds except to accomplish DERP-eligible work within the scope of an OM,N funded construction project."

Hazardous Waste General: All contractors (prime and sub and employees representing either) shall adhere to all of the following requirements which could/may apply while performing work at MCB Quantico: Resource Conservation and Recovery Act (RCRA) of 1976, Federal Facilities Compliance Act of 1992, 40CFR 260-279, 29 CFR 1910.120.q and CFR 1910.1200, MCO P5090.2A w/ CH 3, Chapter 9, MCBO 5090.2D, MCBO 6240.4B, MCBQ Environmental Compliance and Protection Standard Operating Procedures chapters (ECPSOP) 3-Hazmat, 4-Hazwaste, and 5-Solid Waste.

Hazardous Waste: If any waste (non-haz, hazardous, or universal) is transported for disposal from MCBQ, only NREA personnel are authorized to sign transportation documentation. Copies of all documentation will be forwarded to the KO.

Contractor shall ensure all employee's and representatives of, Hazmat/Hazwaste training certificate/s are provided to the KO before any work is initiated. If contractor is to use a laydown area which will store hazardous material on Govt. property, he/she shall ensure the laydown area can be secured at the end of every work shift to ensure there is no unauthorized entry. The contractor shall ensure that all emergency POC names and numbers are posted and legible from 50' on all four sides. If hazardous materials are stored on site at laydown area, a NFPA diamond must be posted declaring the severity of each hazard being stored. Contractor shall ensure all specific Safety Data Sheets (SDS) are on site and all employees are trained and aware of each hazard. Contractor shall ensure that all employees are trained in spill response in case of a hazmat spill during the contract period.

Contractor shall ensure all hazardous and non-hazardous liquid materials and liquid waste are stored on secondary containment. Contractor shall ensure that all flammable liquids and compressed gas cylinders stored inside the laydown area are stored at the most distance point from the closet highway. Contractor shall ensure there is a certified and working eyewash station where chemicals are used and stored and, it is inspected weekly. Contractor shall ensure all employees are trained and certified to work with any/all hazardous materials required to properly execute this contract. All certificates of training for all contractor employees shall be provided to the KO before any onsite work is initiated

Hazardous Waste: Ensure all employees (prime, sub, and all representatives of both) are trained and certified in the skills required to perform the SOW on this specific contract.

Contractor shall ensure any/all electrical equipment removed is either properly disposed of, or recycled to the greatest extent possible.

Caution shall be taken by the contractor throughout the process ensuring that no signs of previous contamination in and around entire site (POL spills, ACM, PCB's, old material containers which have been discarded) are identified. If contaminated is identified at any time, work shall stop immediately and the KO notified.

Hazardous waste: Contractor shall ensure proper type and quantity of spill equipment are on site at all times and all

contractor employees are trained in the proper use of all spill equipment and disposal.

Hazardous Waste: Contractor shall ensure all hazardous, non-hazardous, recycled waste is properly disposed of. NREA hazardous waste program manager request a site visit after completion of final work and contractor is still on base.

Hazardous Waste: Contractor shall ensure no soil being removed, graded, turned shows signs of being contaminated. If soil contamination is identified, work shall stop immediately and the KO notified. Work shall not resume until permission is granted by the KO.

Hazardous Waste: Contractor shall ensure that all refrigerant is properly managed, stored, and either recycled/used or sent to the federal repository in Richmond via DLA.

4.10 Recreation

Hunting and fishing activities do occur within the immediate proposed project area. Any impacts would be temporary in nature and would occur during the construction of the Staging area. However, the construction of the Staging Area will not have a long-term impact on those activities as the area will still be available for recreational activities.

4.11 Military Training

Impact of Alternative A: This alternative does not involve any construction or demolition, and would not have any additional effects on military training.

Impact of Alternative B: Alternative B would have a positive impact on training as the Range 5 Staging Area would allow the Marines to perform practice runs before utilizing Range 5. It will also increase the overall safety of Marine squads.

4.12 Cumulative Impacts

For NEPA analysis, a cumulative impact is defined as the impact on the environment, which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future action. Impacts can result from individually minor but collectively significant actions taking place over a period of time.

The following actions are either recent past, ongoing, or future projects adjacent to the proposed Range 5 Staging Area location:

Past projects:

- ***Expansion and Upgrade of Range 5 (Completed).***

Ongoing projects:

- ***Construction of Student Barracks at The Basic School (TBS).***

Future projects:

- ***General maintenance of Range 6.***
- ***Install temporary targets on Range 6.***
- ***Construction of new TBS Fire Station.***
- ***Construction of MiniMart at Hot Patch Road.***
- ***Re-establishment of the Perimeter Trail in TA7A and TA9C.***
- ***Contractor-Owned, Contractor Operated (COCO) Retail Service Facility (Westside).***

Mitigation measures similar to those outlined in this EA for The proposed Range 5 Staging Area will or have been completed for the above mentioned projects as necessary. Consultation with the SHPO is also completed for all construction projects at MCBQ as applicable.

4.13 Mitigation Measures

Environmental Impacts Evaluation Matrix		
Resource	Alternative A -No Action.	Alternative B - Construction of Range 5 Staging Area.
Land-Use	None	None
Water Resources	None	None
Biological Resources	None	Negligible; No SWP found within proposed action footprint and very little (if any) suitable habitat located. Not likely to adversely effect the NLEB and Indiana Bat. USFWS time of year restrictions to protect NLEB and Indiana Bat must be adhered to.
Cultural Resources	None	None
Air Quality	None	None
Noise	None	None
Infrastructure, Utilities and Transportation	None	None
Environmental Justice	None	None
Recreation	None	None
Health, Safety and Munitions Response	None	None
Hazardous Waste/Materials	None	None
Military Training	None	Positive - Will increase safety for Marines by allowing for the performance of practice runs.

Figure 4.13.1

Forest Cover Remaining at MCBQ after Implementation of Range 5 Staging Area .	
Current	52,090.00
MCIOC	52,089.90
New Fire Station	52,089.60
Mini Mart	52,089.50
Westside COCO Facility	52,084.70
Range 5 Staging Area	52,071.30
Net Loss	18.7 acres

Figure 4.13.2 Source: Natural Resources and Environmental Affairs Branch(NREA)2015-2019 Integrated Natural Resources Management Plan for Marine Corps Base, Quantico, Virginia. Natural Resources and Environmental Affairs Branch, Marine Corps Base Quantico.

4.13.1 Mitigation of Effects to Water Quality

The implementation of basic erosion and sediment control practices will be required during construction as specified in the Virginia Erosion and Sediment Control Handbook (VDCR 1992), Virginia BMP Field Guide (2009) and the Virginia BMPs For Water Quality Technical Manual (2011) for Forestry Management. The proper installation and maintenance of E&SC measures as well as BMPs will minimize the movement of disturbed soils off-site and into the Cannon Creek watershed. The location will be replanted with perennial vegetation after the tree removal.

4.13.2 Mitigation of Effects to the NLEB and Indiana Bat

USFWS time of year restrictions will be implemented to reduce impacts to the NLEB and Indiana Bat. No trees greater than 3 inches in diameter at breast height may be removed between 15 April and 15 September.

5.0 CONCLUSION

Two alternatives regarding the construction of the Range 5 Staging Area have been evaluated: Alternative A, the No Action Alternative and Alternative B, the action alternative, constructing the Range 5 Staging Area. Alternative B will remove 13.4 acres of deciduous forested land from MCBQ however well over 52,000 acres of forested land will remain. Alternative B is also the project proponent's preferred alternative. As long as the mitigations outlined in Section 4.15.1 and 4.15.2 are followed there will be no significant impacts to human health and the environment due to the implementation of Alternative B.

6.0 LIST OF PREPARERS

Darien Siddall
NEPA Coordination Section
Natural Resources and Environmental Affairs Branch
Installation and Environment Division (GF)
Marine Corps Base Quantico, VA 22134
(703) 432-6770

7.0 LIST OF AGENCIES AND PERSONS CONTACTED

Marc Holma, Architectural Historian

Virginia Department of Historic Resources
Richmond, VA

Natural Resources and Environmental Affairs Branch, Installation
and Environment Division, Marine Corps Base Quantico, VA 22134

Ms. Amy Denn, Head

Major Abram Crutchfield, Deputy

Mr. Frank Duncan, Environmental Planning Section Head

Mr. J. David Grose, Environmental Compliance Section Head

Mr. Robert Stamps, Natural Resources Section Head

Ms. Heather McDuff, NEPA Coordination Section Head

Mr. Ronald Moyer, Forestry Section Head

Mrs. Catherine Roberts, Cultural Resources Manager

Mr. Seth Morphis, Air Program Manager

Mr. Jonmark Sullivan, Water Program Manager

Mr. Wayne Hagwood, Hazardous Waste Program Manager

Dr. Ruth Jacobsen, Chemist/Hazardous Materials Program
Manager

Ms. Marilisa Porter, Solid Waste Program Manager

Mr. Brian Ventura, Munitions Response and Installation
Restoration Program Manager

8.0 REFERENCES

40 CFR parts 1500-1508, Council on Environmental Quality.

50 CFR part 17, Department of the Interior, Fish and Wildlife
Service, Endangered and Threatened Wildlife and Plants;
Threatened Species Status for the Northern Long-Eared Bat With
4(d) Rule; Final Rule and Interim Rule, Vol. 80, No. 63,
Thursday, April 2, 2015.

Bald and Golden Protection Eagle Act, 1940 (16 U.S.C. §668-668d,
54 Stat. 250).

Chesapeake Bay Preservation Act, 1988 (Code of Virginia, Title
10.1-Conservation, Chapter 21).

Clean Air Act, 1970 (42 U.S.C. §7401 et seq., as amended in 1977
and 1990).

Clean Water Act, 1972 (33 U.S.C. §1251 et seq.).

Coastal Zone Management Act, 1972 (16 U.S.C. §1451, et seq., as
amended).

Endangered Species Act, 1973 16 U.S.C. §1531 et seq.,

Executive Order (E.O.) 11988, *Floodplain Management*, 1977.

E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, 1994.

E.O. 13045, *Protection of Children from Environmental Health and Safety Risk*, 1997.

E.O. 13186, *Responsibilities of Federal Agencies to Migratory Birds*, 2001.

E.O. 13514, *Leadership in Environmental, Energy, and Economic Performance*, 2009.

Intergovernmental Panel on Climate Change (IPCC), 2007.

Mandatory Reporting of Greenhouse Gases rule (40 C.F.R. Part 98), Environmental Protection Agency, 2009.

Marine Corps Order 11010.16, 2008.

Marine Corps Order P5090.2A Ch 2, 2009.

Migratory Bird Treaty Act, 1918 (16 U.S.C. §701-12).

National Environmental Policy Act, 1969 (42 U.S.C. §4321 et seq.).

National Historic Preservation Act, 1966 (54 U.S.C. §300101 et seq.).

Naval Facilities Engineering Command. (2012). Range Complex Master Plan, Marine Corps Base Quantico. Washington D.C.

Natural Resources and Environmental Affairs Branch (NREA)
2007 Integrated Cultural Resource Management Plan for Marine Corps Base, Quantico, Virginia. Natural Resources and Environmental Affairs Branch, Marine Corps Base Quantico, VA.

Natural Resources and Environmental Affairs Branch (NREA)
2015-2019 Integrated Natural Resources Management Plan for Marine Corps Base, Quantico, Virginia. Natural Resources and Environmental Affairs Branch, Marine Corps Base Quantico, VA.

Survey for Harperella at Marine Corps Base Quantico, Virginia.(2004). Virginia Department of Conservation and Recreation, Richmond, Virginia.

U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp.

Virginia Department of Conservation and Recreation (VDCR) 1992 *Virginia Erosion and Sediment Control Handbook*, Richmond, VA.

Virginia Department of Forestry. 2009. Virginia's Forestry Best Management Practices for Water Quality Field Guide. Charlottesville, Virginia.

Virginia Department of Forestry. 2011. Virginia's Forestry Best Management Practices for Water Quality Technical Manual. Charlottesville, Virginia.

Virginia Tech Conservation Management Institute (VTCMI) 2016. 2016 Bat Survey for U.S. Marine Corps Base Quantico, Virginia Blacksburg, Virginia. - Draft

Table of Acronyms

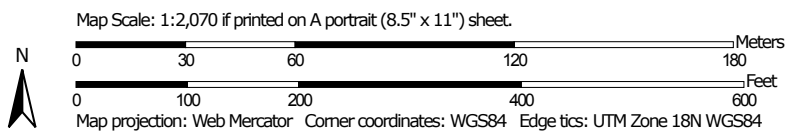
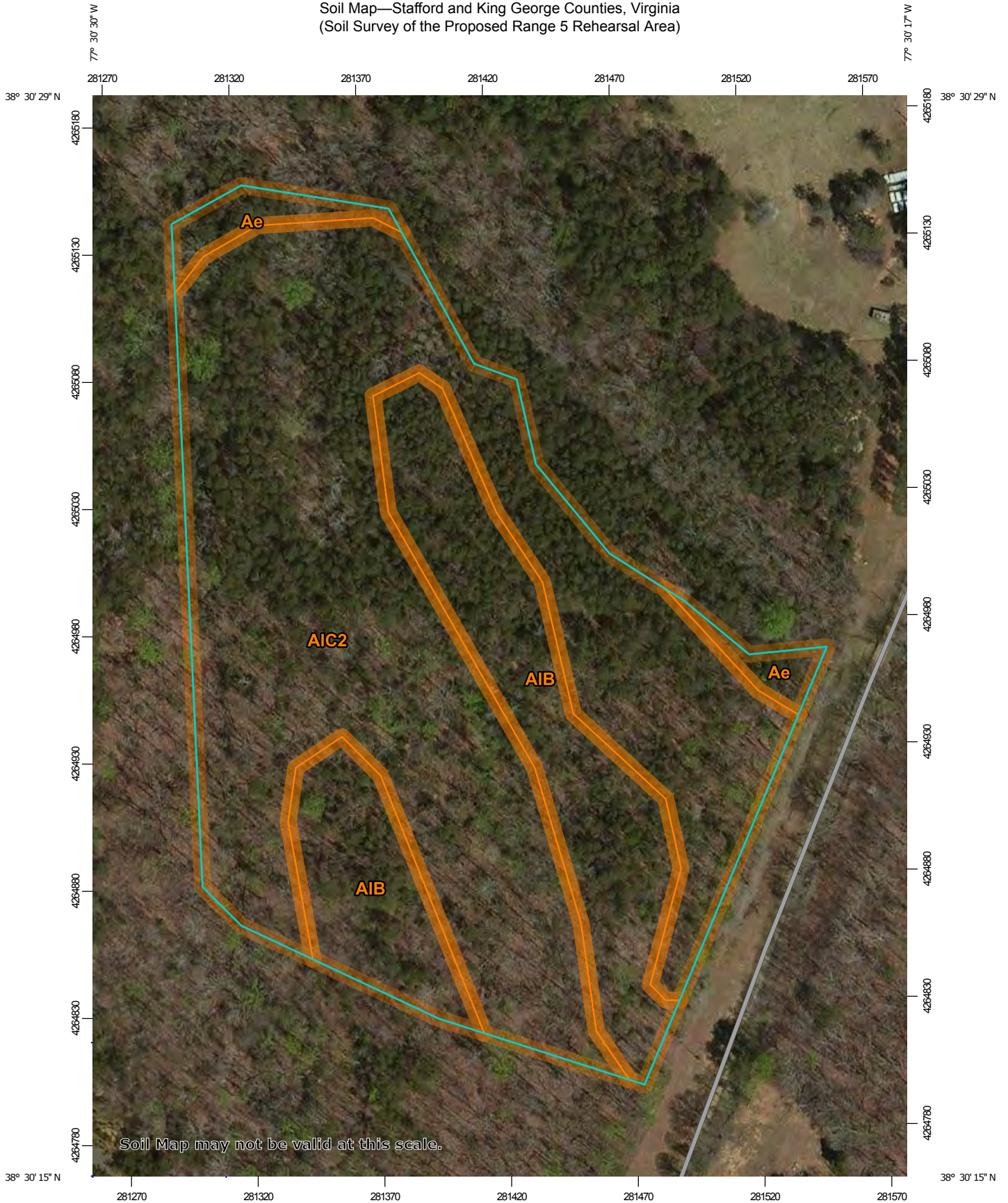
ACHP - Advisory Council on Historic Preservation
ACM - Asbestos Containing Materials
Ae - Alluvial Land Wet
AlB - Applying Fine Sandy Loam
AlC2 - Applying Fine Sandy Loam 6-15% slopes
BACT - Best Available Control Technology
BGPA - Bald and Golden Eagle Protection Act
BMP - Best Management Plans
C.A.A. - Clean Air Act
CATEX - Categorical Exclusion
CBPA - Chesapeake Bay Preservation Act
CDD - Construction Demolition Debris
CEQ - Council on Environmental Quality
CFR - Code of Federal Regulations
CH₄ - Methane
CO - Carbon Monoxide
CO₂ - Carbon Dioxide
CO₂E - Carbon Dioxide Equivalent
CRMP - Coastal Resources Management Program

CWA - Clean Water Act
DERP - Defense Environmental Restoration Program
DoD - Department of Defense
EA - Environmental Assessment
EISA - Energy Impact Security
ESA - Endangered Species Act
E.O. - Executive Order
E.P.A. - Environmental Protection Agency
ER - Environmental Restoration
ER, N - Environmental Restoration Program, Navy
E & SC - Erosion and Sediment Control
FEMA - Federal Emergency Management Agency
FIRM - Flood Insurance Rate Map
GHG - Greenhouse Gases
G.I.S. - Geographic Information Systems
HVAC - Heating, Ventilation and Air Conditioning.
KO - Contracting Officer
LAER - Lowest Achievable Emissions Rate
LANDNAV - Land Navigation Training
LID - Low Impact Development
MBTA - Migratory Bird Treaty Act
MCBQ - Marine Corps Base Quantico
MCO - Marine Corps Order
Minor NSR - Minor New Source Review
MMBtu/hr - One Million British Thermal Units Per Hour
MO - Marine Operations
MOU - Memorandum of Understanding
MSW - Municipal Solid Waste
NAAQS - National Ambient Air Quality Standard
NAVFACENGCOM - Naval Facilities Engineering Command
NAVFAC - Naval Facilities Engineering Command
N-A NSR - Nonattainment New Source Review
NEPA - National Environmental Policy Act
NFPA - National Fire Protection Association
NHPA - National Historic Preservation Act
NRHPA - National Register of Historic Places
NLEB - Northern Long-Eared Bat
NO_x - Nitrogen Dioxide
N₂O - Nitrous Oxide
NREA - Natural Resources and Environmental Affairs
NSR - New Source Review
NWI - National Wetlands Inventory
OCS - Office Candidates School
ODS - Ozone Depleting Substances
OM, N - Navy Operations and Maintenance
OPNAVINST - Chief of Naval Operations Instruction
PCB - Polychlorinated Biphenyl

pCi/L - Picocuries per Liter
PM - Particulate Matter
POL - Petroleum, Oil and Lubricant
PSD - Prevention of Significant Deterioration
PTE - Potential to Emit
QMCBHD - Quantico Marine Corps Base Historic District
Rd. - Road
RCRA - Resource Conservation and Recovery Act
RMA - Resource Management Areas
RPA - Resource Protection Areas
SHPO - State Historic Preservation Officer
SIP - State Implementation Plan
SO₂ - Sulfur Dioxide
SWP - Small Whorled Pogonia
TA - Training Area
TBS - The Basic School
Tpy - Tons per Year
USACE - U.S. Army Corps of Engineers
USCERL - U.S. Army Construction Engineering and Research
Laboratory
USFWS - United States Fish and Wildlife Service
UXO - Unexploded Ordnance
VA - Virginia
VAC - Virginia Administrative Code
VDEQ - Virginia Department of Environmental Quality
VOC - Volatile Organic Compounds


Appendix A
Soil Survey Maps

Soil Map—Stafford and King George Counties, Virginia
(Soil Survey of the Proposed Range 5 Rehearsal Area)





MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Stafford and King George Counties, Virginia

Survey Area Data: Version 12, Dec 13, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Stafford and King George Counties, Virginia (VA179)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ae	Alluvial land, wet	0.5	3.4%
AIB	Appling fine sandy loam, 2 to 6 percent slopes	3.6	26.1%
AIC2	Appling fine sandy loam, 6 to 15 percent slopes, eroded	9.6	70.5%
Totals for Area of Interest		13.7	100.0%

Appendix B
Endangered Species and Small-Whorled Pogonia Documentation



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694 Fax: (804) 693-9032
<http://www.fws.gov/northeast/virginiafield/>

In Reply Refer To:

July 03, 2017

Consultation Code: 05E2VA00-2017-SLI-3845

Event Code: 05E2VA00-2017-E-08454

Project Name: Range 5 Rehearsal Area

Subject: List of threatened and endangered species that may occur in your proposed project location, and/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.). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

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 ECOS-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 ECOS-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:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

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 Tracking Number 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

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:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

Project Summary

Consultation Code: 05E2VA00-2017-SLI-3845

Event Code: 05E2VA00-2017-E-08454

Project Name: Range 5 Rehearsal Area

Project Type: LAND - CLEARING

Project Description: Clearing approximately 13.4 acres for a rehearsal area at Marine Corps Base Quantico. Project anticipated to begin in August 2017.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/38.50631642408574N77.50684138960035W>



Counties: Stafford, VA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on your 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. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Indiana Bat (<i>Myotis sodalis</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
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	Threatened

Flowering Plants

NAME	STATUS
Harperella (<i>Ptilimnium nodosum</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3739	Endangered
Small Whorled Pogonia (<i>Isotria medeoloides</i>) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

There are no critical habitats within your project area.

USFWS National Wildlife Refuges And Fish Hatcheries

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

There are no refuges or fish hatcheries within your project area.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Date: 25 July 2017

Self-Certification Letter

Project Name: Proposed Range 5 Staging Area at Marine Corps Base Quantico, VA

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Ecological Services online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended (Eagle Act). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

The species conclusions table in the enclosed project review package summarizes your ESA and Eagle Act conclusions. These conclusions resulted in:

- “no effect” determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- “may affect, not likely to adversely affect” determinations for proposed/listed species and/or proposed/designated critical habitat; and/or
- “may affect, likely to adversely affect” determination for the Northern long-eared bat (*Myotis septentrionalis*) and relying on the findings of the January 5, 2016 Programmatic Biological Opinion for the Final 4(d) Rule on the Northern long-eared bat; and/or
- “no Eagle Act permit required” determinations for eagles.

We certify that use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with the "no effect" or "not likely to adversely affect" determinations for proposed and listed species and proposed and designated critical habitat; the "may affect" determination for Northern long-eared bat; and/or the "no Eagle Act permit required" determinations for eagles. Additional coordination with this office is not needed.

Candidate species are not legally protected pursuant to the ESA. However, the Service encourages consideration of these species by avoiding adverse impacts to them. Please contact this office for additional coordination if your project action area contains candidate species.

Should project plans change or if additional information on the distribution of proposed or listed species, proposed or designated critical habitat, or bald eagles becomes available, this determination may be reconsidered. This certification letter is valid for 1 year.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available at our website http://www.fws.gov/northeast/virginiafield/endspecies/project_reviews.html. If you have any questions, please contact Troy Andersen of this office at (804) 824-2428.

Sincerely,



Cindy Schulz
Field Supervisor
Virginia Ecological Services

Enclosures - project review package

Species Conclusions Table

Project Name: Proposed Range 5 Staging Area in Training Area 9C at Marine Corps Base Quantico, Virginia

Date: 9 August 2017

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Critical Habitat	No critical habitat.	No effect.	Not Applicable
Bald Eagle	Unlikely to disturb Bald Eagle nests.	No Eagle Act permit required.	No nests within 660 ft. and not within a concentration area.
Harperella	No suitable habitat present.	No effect.	No perennial streams within or near the proposed action footprint.
Indiana Bat	Suitable habitat present but species is not present at this location.	Not likely to adversely effect.	Implementing Time of Year restriction from April 15 – September 15; proposed action will not start until after 15 September 17 and will conclude before 15 April 2018.
Northern Long-Eared Bat	Suitable habitat present but species is not present at this location.	Not likely to adversely effect.	Implementing Time of Year restriction from April 15 – September 15; proposed action will not start until after 15 September 17 and will conclude before 15 April 2018.
Small-Whorled Pogonia	Suitable habitat present but species is not present at this location.	Not likely to adversely effect.	Survey conducted on 22 June 2017 by Nature Resource Specialist/qualified surveyor indicated absence.

Siddall CIV Darien G

From: Stephenson, Chelsey <chelsey_stephenson@fws.gov>
Sent: Friday, August 11, 2017 9:23 AM
To: Siddall CIV Darien G
Subject: [Non-DoD Source] Re: Proposed Range 5 Staging Area Updated Species Summary Table.

Hi Darien,

That looks great--thank you for sending in the revised table. We have reviewed the Range 5 Rehearsal Area project and have no further comments.

Best,
Chelsey

On Wed, Aug 9, 2017 at 3:07 PM, Siddall CIV Darien G <darien.siddall@usmc.mil <mailto:darien.siddall@usmc.mil> > wrote:

Hello Chelsey,

Here is the Range 5 Staging Area updated species summary table as you requested. If there are any comments/concerns please contact me. Thanks!

Darien Siddall
Natural Resource Specialist
NEPA Program
Natural Resources and Environmental Affairs (NREA)
Environmental Planning Section
3049 Bordelon St.
Phone: 703-432-6770
Fax: 703-784-4953
DSN: 278-4030
E-mail: darien.siddall@usmc.mil <mailto:darien.siddall@usmc.mil>

--

Chelsey Stephenson
Virginia Field Office
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061



UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION
MARINE CORPS BASE
3250 CATLIN AVENUE
QUANTICO, VIRGINIA 22134 5001

IN REPLY REFER TO:
11015/1
B 046
24 JUL 17

MEMORANDUM FOR THE RECORD

From: Natural Resource Specialist, Natural Resources Section,
Natural Resources and Environmental Affairs Branch (B 046)

To: File

Subj: Range 5 Rehearsal Area

Encl: (1) Map of Survey Area for Range 5 Rehearsal Area Site

1. On 22 June 2017, the proposed site for the Range 5 Rehearsal Area was surveyed for the small whorled pogonia (SWP), *Isotria medeoloides*, a federally listed threatened species. The enclosure provides a map of the survey area. Survey personnel were Brad Watkin, Kenneth Erwin and Joe Montemayor of the Natural Resources and Environmental Affairs Branch(B 046).

2. Habitat at the site consisted of half mature mesic hardwood forest primarily composed of yellow poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubra*), and oak (*Quercus* spp.). The other half was a dense stand of virginia pine (*Pinus virginiana*). A second order stream formed the western boundary of the site. Indian cucumber root (*Medeola virginiana*), a species commonly found in association with SWP, was present in some small patches near the stream.

3. The SWP was not found during the survey. The Range 5 Rehearsal Area Site project should not have any impacts on this federally listed species.

WATKIN.BRADLE
Y.W.1285981820
B. W. WATKIN

Digitally signed by WATKIN.BRADLE, W.1285981820
DN: cn=W.1285981820, o=US Government, ou=DAI, email=W.1285981820
Date: 2017.07.24 14:09:08 -0400

Copy to:
Head, NEPA Section

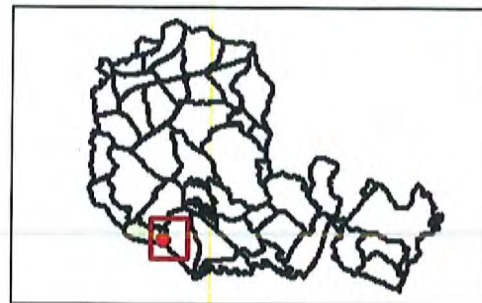
Proposed Range 5 Rehearsal Area



0 0.075 0.15 0.3 Miles

Legend

-  Proposed Range 5 Rehearsal Area
-  Range
-  Intermittent Stream
-  Perennial Stream
-  Wetlands
-  Roads
-  Training Area Boundary



Siddall CIV Darien G

From: Reynolds, Rick (DGIF) <Rick.Reynolds@dgif.virginia.gov>
Sent: Thursday, May 4, 2017 11:23 AM
To: Siddall CIV Darien G
Subject: [Non-DoD Source] FW: Hell Rick, this is Darien Siddall...this is concerning the Little Brown Bat and Tri-Colored Bat.

See below.

Rick

-----Original Message-----

From: Reynolds, Rick (DGIF)
Sent: Thursday, May 04, 2017 11:01 AM
To: 'Siddall CIV Darien G'
Subject: RE: Hell Rick, this is Darien Siddall...this is concerning the Little Brown Bat and Tri-Colored Bat.

According to DGIF records we are not aware of summer roosts or winter hibernacula for either tri-colored or little brown bat on the Quantico Base.

Rick Reynolds
Wildlife Biologist
Virginia Department of Game and Inland Fisheries P.O. Box 996 Verona, VA 24482
540-248-9360

-----Original Message-----

From: Siddall CIV Darien G [mailto:darien.siddall@usmc.mil]
Sent: Thursday, May 04, 2017 10:52 AM
To: Reynolds, Rick (DGIF)
Subject: Hell Rick, this is Darien Siddall...this is concerning the Little Brown Bat and Tri-Colored Bat.
Importance: High

Hello Rick,

We spoke at today concerning the State Endangered Little Brown Bat and Tri-Colored Bat. Per our conversation and use of your system, you stated that there were no known colonies of either of these species. They have been detected on our base though. Please send me your concurrence/non-concurrence on this issue. I have attached the map to this e-mail Thanks!

Darien Siddall
Natural Resource Specialist
NEPA Section
Natural Resources and Environmental Affairs (NREA) Environmental Planning Section
3049 Bordelon St.
Marine Corps Base (MCB) - Quantico, VA 22134
Phone: 703-432-6770
Fax: 703-784-4953
DSN: 278-4030
E-mail: darien.siddall@usmc.mil

INTRODUCTION

In May 2003, the U.S. Department of the Navy, Engineering Field Activity-Chesapeake, entered into a cooperative agreement with the Virginia Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH) to conduct surveys for harperella (*Ptilimnium nodosum*) at Marine Corps Base Quantico (MCBQ). Fieldwork for the project was originally planned for the summer of 2003, but very high water levels in the stream habitat where the species occurs made inventory for the species impossible that year. Therefore, by a modification to the cooperative agreement signed in October 2003, fieldwork for the project was postponed until 2004.

Harperella is a diminutive herb in the carrot family. On September 28, 1988, the plant was listed as an endangered species under the federal Endangered Species Act of 1973, as amended, which is administered by the U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service 1988). On January 26, 2004, the plant was listed as an endangered species under the Virginia Endangered Plant and Insect Species Act (Virginia Board of Agriculture and Consumer Services 2004). Harperella is ranked as G2 (very rare and imperiled throughout its range) by NatureServe (the network of natural heritage programs) and The Nature Conservancy. Thirteen extant populations of the species were known from seven states (Alabama, Arkansas, Georgia, Maryland, North Carolina, South Carolina, and West Virginia) when the U.S. Fish and Wildlife Service recovery plan for the species was prepared in 1990. This represented a 50 percent decline in the number of sites known historically. The recovery plan lists surveys for additional populations as a task necessary for the long-term protection of the species and its habitat. Such surveys are needed to meet the objective of removing the plant from the list of species protected under the Endangered Species Act (Maddox and Bartgis 1990).

Harperella was discovered for the first time in Virginia in 2002. The location was along Aquia Creek at the southern boundary of Marine Corps Base Quantico in Stafford County. An estimated 350 ramets were located within a 10 by 20 meter area extending from the northern bank to about the middle of the creek (Figure 1). The plants were found where the creek makes a sharp (ca. 90 degree) bend a short distance upstream from the Fall Line. Plants were growing from several bedrock fissures in the mafic bedrock that underlies the creek in this area. Additional information about this population is found in Belden and Van Alstine (2002). The discovery of this population raised the possibility of additional locations for the rare plant at MCBQ and served as the impetus for this survey study.

Some authors split *Ptilimnium nodosum* (Rose) Mathias into two or three separate species. If two species are recognized (*Ptilimnium nodosum* (Rose) Mathias and *Ptilimnium fluviatile* (Rose) Mathias), the Virginia material is *Ptilimnium fluviatile* (Rose) Mathias. If three species are recognized (*Ptilimnium nodosum* (Rose) Mathias, *Ptilimnium fluviatile* (Rose) Mathias, and *Ptilimnium viviparum* (Rose) Mathias), the Virginia material is *Ptilimnium viviparum* (Rose) Mathias (Rose 1905, Rose 1911, Mathias 1936, Easterly 1957, Maddox and Bartgis 1990). In listing the plant as an endangered species in 1988, the U.S. Fish and Wildlife Service used the name *Ptilimnium nodosum* to include all three of these entities.

areas or alter the widely fluctuating hydrologic regime to which the species is adapted. The latter includes siltation caused by run-off from construction, development, or agriculture; stream acidification from acid deposition (acid rain); and stream eutrophication from sewage or other nitrate deposition (Maddox and Bartgis 1990).

Based on this review of habitat requirements for harperella, it was determined that the following watercourses at MCBQ had potential for the rare species: Aquia Creek above Smith Lake, Chopawamsic Creek below Breckenridge Reservoir and west of I-95, and Cedar Run. Beaverdam Run was also considered, but it appeared that the free-flowing portions of this waterway were too narrow to provide the open, sunny conditions required by the rare species. Several points along Beaverdam Run were checked during field surveys for this project, and the creek did, in fact, appear too shaded for the plant.

Fieldwork for this project was conducted between August 10 and August 19, 2004, by DCR-DNH field botanist Allen Belden Jr. Dr. Elizabeth Fortson Wells, Associate Professor of Botany at The George Washington University in Washington, D.C., and two of her students assisted with fieldwork on August 10, 2004. Those watercourses with potential habitat for harperella were walked and waded during that time, and all sand/gravel/cobble bars, shoals, water willow beds, and bedrock fissures were carefully checked for the diminutive plant. Figures 2-7 show the exact areas that were searched for the rare species.

RESULTS AND DISCUSSION

No new populations or colonies of harperella were found at MCBQ in 2004.

Extensive potential habitat for harperella was found along Aquia Creek. The portion of the creek that appeared most favorable begins west of Smith Lake. The eastern terminus of the survey route shown in Figure 7 indicates the end of the free-flowing portion of Aquia Creek upstream from the lake and, thus, the eastern boundary of potential habitat along the creek. Favorable habitat extends west for 2.2 straight-line kilometers to where an unnamed tributary (whose headwaters begin just north of the town of Sheltons Shop) enters the creek from the south.

In this area, Aquia Creek has a relatively steep gradient as it passes over the Fall Line. Sand/gravel/cobble bars and small rock outcrops are numerous. Shallow riffles, shoals, and water willow beds are frequently encountered. The creek is sufficiently wide in this area to provide ample sunlight to creek bed vegetation. There is, however, a major problem for harperella in this area. Extensive residential and commercial development in the watershed in recent years on private lands to the south and west of MCBQ has resulted in serious sediment loading into the creek. The deeper pools along the watercourse are often clogged with several feet of watery silt. A less serious problem is the presence of aggressive non-native species that could compete with the rare plant. These include eulalia (*Microstegium vimineum*), marsh

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

CHAPTER 7

THREATENED AND ENDANGERED SPECIES

SECTION 5: HARPERELLA

7500. DESCRIPTION, LIFE HISTORY, AND HABITAT REQUIREMENTS

1. General Description. Harperella (*Ptilimnium nodosum*) is an annual herb belonging to the carrot family (Apiaceae). In 1988, the plant was listed as a federal endangered species. In 2004, it was listed as an endangered species under the Virginia Endangered Plant and Insect Species Act. Harperella grows to a height of 40 - 100 centimeters, with hollow, quill-like leaves. Its flowers are similar in appearance to Queen Anne's Lace, a common roadside plant (USFWS 1990).

2. Reproduction. Harperella produces small white flowers in clusters called umbels during the flowering period, May - June. The plant germinates, grows and flowers in one season. Seedling germination has not been observed, but the fall die-back of adults suggests that germination occurs in late spring (USFWS 1990).

3. Habitat. This plant is found in rocky substrate along edges of coastal plain ponds and seasonally flooded streams (USFWS 1990). In the northern part of its range, it grows on sandy or gravelly shoals or in bedrock crevices of clear, swift-flowing streams or rivers. It appears to favor sunny areas and is often associated with the herb water willow (*Justicia Americana*) (Maddox and Bartgis 1990).

7501. MCBQ HISTORICAL INFORMATION.

1. The VDCR found a harperella site along Aquia Creek in 2002 (Belden 2002). The site is located about 0.9 mile northwest of Garrisonville Road and about 0.4 mile southwest of the junction of Aquia Creek and Onville Road (Route 641). It is estimated that there were 350 ramets of Harperella within a 10 by 20 meter area extending from the northern bank of Aquia Creek to about the middle of the creek.

2. All riverine habitat on the Base deemed suitable for Harperella was surveyed in 2004. No new populations of harperella were found beyond that found by VDCR in 2002 (Belden 2004). The Aquia Creek population had declined from about 350 in 2002 to only 20 ramets in 2004. It is believed that high water levels and accompanying increase in flood scouring in 2003 from hurricane Isabel may have accounted for the decline. In 2005, the VDCR found 50-60 ramets and it appeared that the population was rebounding (Townsend, pers. comm.).

3. Fieldwork conducted at the Aquia Creek site by VDCR in August, 2009, located 57 Harperella ramets (Belden 2009). While the population appears to be stabilizing, there remains a threat in the

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

MCB Quantico: Harperella Site and Cannon Creek Watershed - April 17, 2006

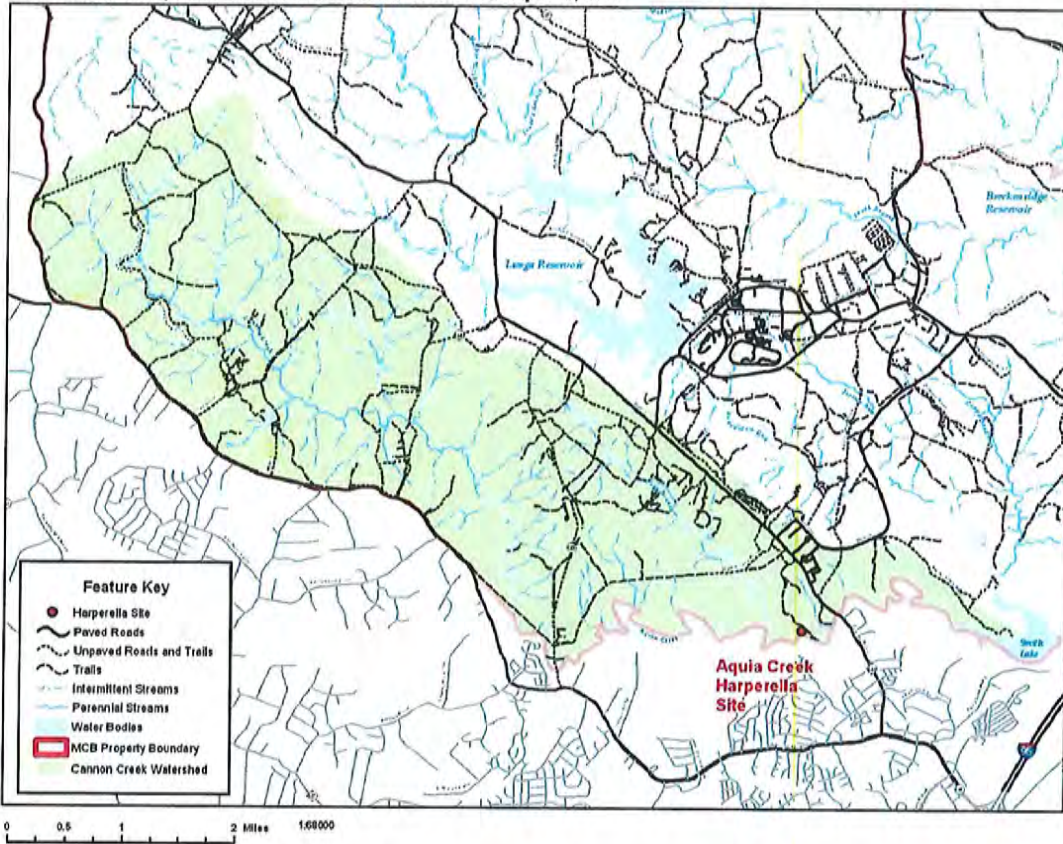


Figure 7-4. Harperella location and watershed.

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

CHAPTER 7

THREATENED AND ENDANGERED SPECIES

SECTION 4: DWARF WEDGEMUSSEL

7400. DESCRIPTION, LIFE HISTORY, AND HABITAT REQUIREMENTS

1. Description. The dwarf wedgemussel (DWM) is a relatively small freshwater mussel species, seldom exceeding 38 mm in length. The shell outline of the DWM is more or less ovate or trapezoidal. The chief distinguishing characteristic of this species is that its right valve possesses two lateral teeth and the left valve only has one tooth. All other North American freshwater mussels having lateral teeth are opposite. There is a degree of sexual dimorphism in DWM, however, male and individuals are distinguished by the outline of the female shell, which is shorter, swollen posteriorly, and more trapezoidal than the more compressed, ovate and elongated male counterparts (USFWS 1993).

2. Life History. The reproductive cycle of this species is similar to that of other freshwater mussel species. During the spawning period, August 15 - October 15, males discharge sperm into the water. Females take in the sperm during siphoning which fertilizes the eggs as they pass into and mature within water tubes in the gills. The resulting embryos mature into glochidia which are released into the water from April 15 - June 15 and must attach to an appropriate species of fish. If the glochidia attach to a suitable host, they encyst and eventually metamorphose to the juvenile stage. When metamorphosis is complete, the juvenile mussels drop to the streambed (USFWS 1993).

3. Habitat. This species lives on muddy sand and gravel bottoms in freshwater creeks and rivers of varying sizes, in areas of slow to moderate current and little silt deposition (USFWS 1993).

7401. MCBQ HISTORICAL INFORMATION.

1. The VDCR (1992) found DWMs in a 0.5 mile reach of Aquia Creek extending from above the pool at the old Route 643 crossing upstream to the Route 610 bridge (Figure 7-3). Eight live mussels were observed between the pool and Cannon Creek, and 14 individuals were found as fresh or relict shells. Three live individuals were recorded in the shallow areas below the culvert pool below the old Route 643 crossing (VDCR 1992).

2. Michaelson and Neves (1995) reported finding dozens of animals during their study of this population in 1991 and 1992 and transported a number of individuals to the Virginia Polytechnic Institute and State University in Blacksburg, Virginia. The tessellated darter

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

7402. MANAGEMENT RECOMMENDATIONS

1. Water Quality Protection

a. The VDCR recommended that the MCBQ watershed area shown at Figure 7-3 be protected from disturbances to water quality. The site includes Aquia Creek, its associated riparian zone, and adjacent steeply sloped uplands. Also included are portions of Cannon Creek, a tributary stream that enters Aquia Creek at the location of the DWM colony. VDCR recommended that any proposed disturbances of the stream channel and flow conditions should be referred to the USFWS for comment.

b. Any timber harvest activities in the Aquia Creek watershed should be administered to protect water quality by minimizing disturbance to the vegetation or soils.

c. If the use of pesticides for controlling forest pests is required in this area, the following buffer zones are recommended; (a) 150-ft wide buffer for *Bacillus thuringiensis* (BT), and (b) 300-ft wide buffer for Dimilin. The Virginia Division of Natural Heritage, VDCR, highly recommends that BT be used instead of Dimilin because BT is not known to harm freshwater mussels or other aquatic invertebrates whereas negative effects have been reported for Dimilin.

2. Population Monitoring. Although the DWM may have been extirpated from Aquia Creek, it is recommended that one more comprehensive survey be conducted to search for this species downstream from the confluence of Cannon Creek and Aquia Creek to Onville Road. Sampling to identify the presence and number of DWMs in this population should be conducted by a qualified surveyor who has necessary state and federal permits.

7403. REFERENCES

- Chazal, A. C. 2000. Zoological surveys for the dwarf wedgemussel and Lepidoptera at Marine Corps Base, Quantico, Virginia. Natural Heritage Technical Report 00-05. Va. Dept. of Cons. and Rec., Div. of Nat. Heritage. Richmond, Va. 17 pp. plus appendices.
- Chazal, A. C. and S. M. Roble. 2009. Status survey for the dwarf wedgemussel (*Alasmidonta heterodon*) in Aquia Creek, Marine Corps Base, Quantico, Virginia, 2009. Natural Heritage Technical Report 09-15. Va. Department of Conservation and Recreation, Division of Natural Heritage, Richmond, VA. 8 pp.
- Michaelson, D. L. and R. J. Neves. 1995. Life history and habitat of the endangered dwarf wedgemussel *Alismidonta heterodon* (Bivalvia:Unionidae). J. N. Am. Benthol. Soc. 14(2):324-340.

Dwarf Wedge Mussel Location & Water Quality Protection Zone

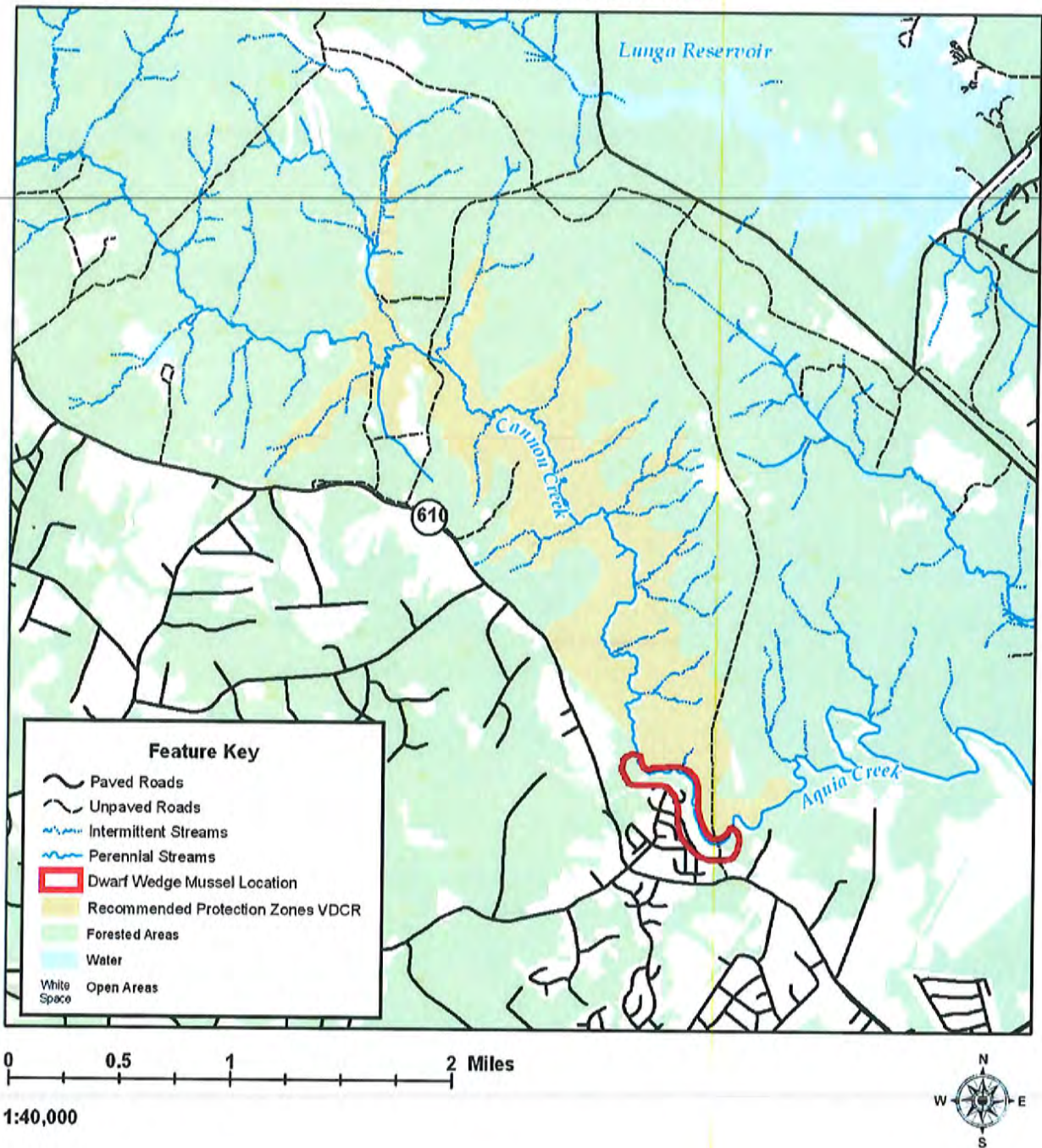


Figure 7-3. Dwarf wedge mussel location and protection zone.



The CENTER for
CONSERVATION
BIOLOGY

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Resources

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CCB MAPPING PORTAL

Letelier | CanisDB | Attribution: Terra © Esri — Source: Esri, Lockheed, USDA, USGS, AEC, GeoEye, GeoMapping, AeroGRID, IGN, IGP, UPR-EGP, and the GIS User Community

Search

Print Report

Generate Link

Toggle Draw Tools

100 ft
630 ft



Layers

Bald Eagle

VA Eagle Nest Locator

Area in Beans

Most recent data CCB has on bald eagle nest locations in Virginia. Data is largely from two annual aerial flights conducted in winter and spring of all tributaries of the lower Chesapeake Bay and other prominent bodies of water. Reported ground survey data is also included.

More Info

VA Eagle Nest Buffers

Eagle Roosts

Eagle Roost Polygons

Eagle Roost Buffers

Eagle Roosts by Topoquad

Waterbirds

Chesapeake Bay Herons

2013

Colonial Waterbirds 2013

Colonial Waterbirds 2008

Colonial Waterbirds 2003

Osprey

Osprey/Watch Nests

Chesapeake Bay Osprey

Nests 1995-1996

Nighthawk

Nighthawk Survey Network

Routes



BALD EAGLE

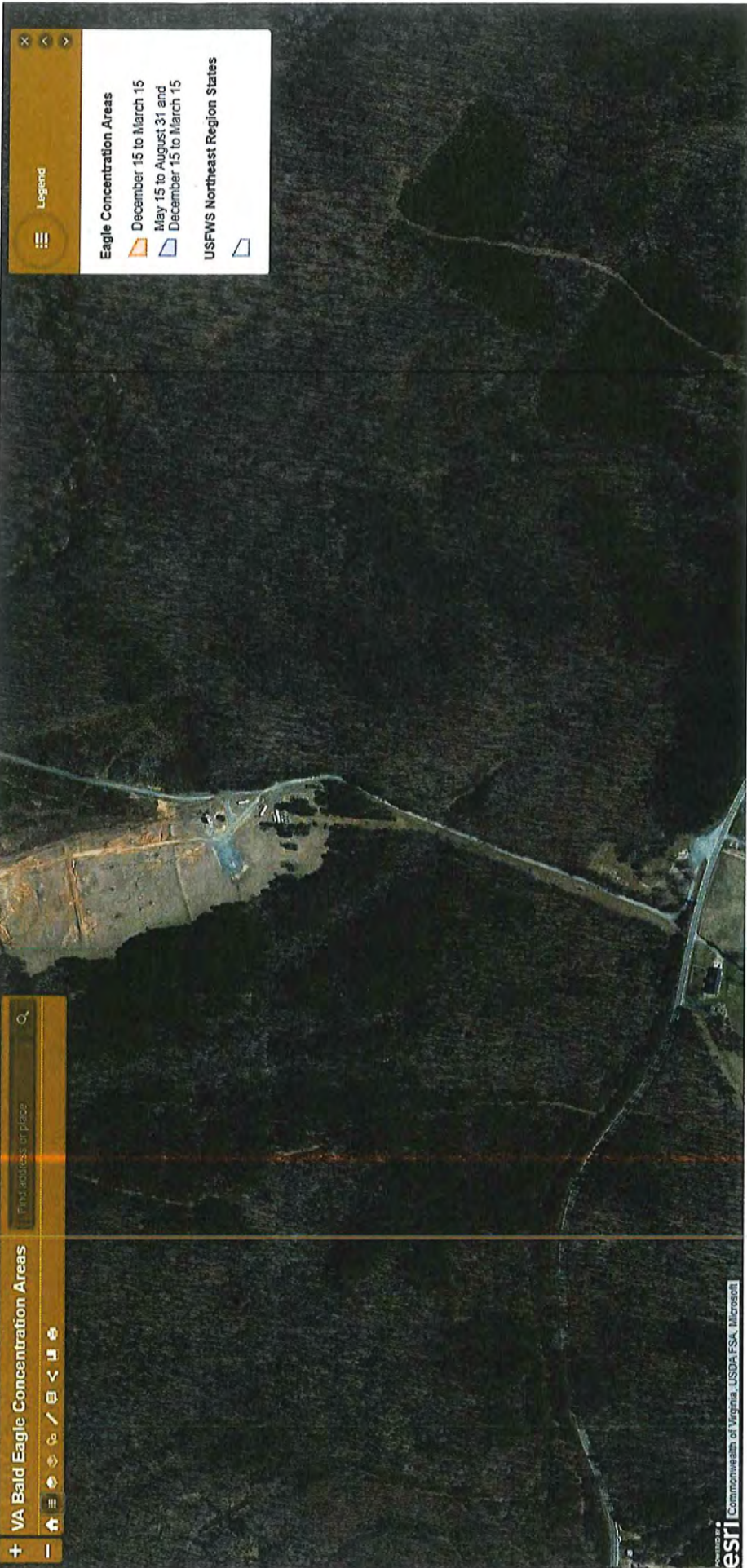
VA Eagle Nest Locator

+ VA Bald Eagle Concentration Areas

Find address or place

Search icon

Map navigation icons: Home, Back, Forward, Full Screen, Print, Measure, Share, Refresh



Appendix C
Cultural Resources Survey Report

Siddall CIV Darien G

From: Roberts CIV Catherine
Sent: Wednesday, August 23, 2017 8:43 AM
To: Siddall CIV Darien G
Subject: project summaries
Signed By: catherine.roberts@usmc.mil

COCO station

One transect (10 meter intervals) was used to test a 4.7 acre area designated for the construction of the COCO station. There were no positive STPs. No cultural resources were located on the surface; no further testing is needed in this area.

12B Realignment

A previous survey was conducted in the area of 12B. No cultural resources were found; no further work in this area is needed.

Range 5 Rehearsal Area

Two transects at 10 meter intervals were used to test 13 acres south of range 5. There were no positive STPs and no visible historic resources located on the surface. No further work is needed in this area.

Marine Corps Base Quantico
Archaeologist
703 432 6781

Appendix D
Timber Assessment

GOVERNMENT ESTIMATE FOR TIMBER SALE CONTRACT

CONTRACT #: N40080-17-TS-01 MOD 001

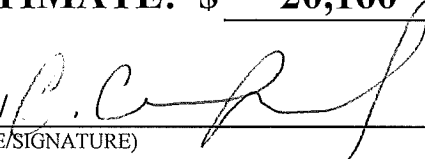
INSTALLATION: MCB, Quantico

PRODUCTS FOR SALE

(VOLUMES ESTIMATED USING STANDARD TECHNIQUES)

SPECIES AND PRODUCT	ESTIMATED QUANTITY AND UNIT OF MEASURE	VALUE/UNIT	TOTAL
<u>Sawtimber</u>			
Virginia Pine	124.1 MBF	50	\$ 6,205
Yellow Poplar	36.8 MBF	150	\$ 5,520
White Oak	22.4 MBF	225	\$ 5,040
Red Oak	29.9 MBF	100	\$ 2,990
Miscellaneous	5.4 MBF	75	\$ 405
 <u>Pulpwood</u>			
Pine	40 Cords	N/A	\$ 0
Hardwood	18 Cords	N/A	\$ 0

TOTAL GOVERNMENT ESTIMATE: \$ 20,160

Submitted By: Christopher W. Crawford/ 
(NAME/SIGNATURE)

Title: Forester

Date: July 6, 2017

Siddall CIV Darien G

From: Moyer CIV Ronald R
Sent: Friday, July 14, 2017 7:32 AM
To: Siddall CIV Darien G
Subject: Timber Appraisals
Attachments: TimberAppraisal_R5_BypassRoadR5-R6.pdf
Signed By: ronald.moyer@usmc.mil

Darien,

Attached is the timber appraisal for the new rehearsal area just south of Range 5. This appraisal also includes the right-of-way timber for the Route 610 bypass road project from Range 5 to Range 6. We plan on adding this timber to one of our 2017 timber sale contracts as a modification (Contract N40080-TS-01 Mod 001)

The Training Area 12B re-alignment project does not include any merchantable timber. The area to be cleared consists mainly of small Virginia pine and some low quality hardwoods. Our plan is to push these trees up with the dozer, pile them, and then burn it this fall or winter.

Ron Moyer
Head, Forestry Program
NREA, Installation & Environment Div.
MCB Quantico, Virginia
Phones: 703 432-6779
571 238-8802

Appendix E
Construction Waste Management Report

Construction Waste Management Report at Quantico Marine Corps Base

Report Date: _____
 Project Number: _____ Project Name: _____
 Contract Number: _____ Contract Task Order/Delivery Order: _____
 Reporting Period: _____ to _____

**SUBMIT THIS FORM BY FAX TO (703) 784-4953, OR BY EMAIL TO: Marilisa Porter
 at marilisa.porter@usmc.mil or call (703) 432-0522**

Comments: _____

Waste Stream	Disposal (Tons)	Disposal Cost	Recycled (Tons)	Recycled Cost	Recycled Revenues
C&D		\$		\$	\$

CONSTRUCTION & DEMOLITION DEBRIS (C&D).

- Record hazardous and non-hazardous C&D waste as one entry. Enter total tons of C&D disposed of in a landfill, by incineration, and/or by hazardous waste contract.
- Enter total disposal cost for C&D.
- Enter the recycled hazardous and non-hazardous C&D tons as one entry under the recycling column. You can also claim C&D diversion conducted by a construction contractor or MILCON project. If you have recycled C&D, it is likely that some was disposed of as well. Therefore, if there are recycled tons of C&D there should be some disposed tons of C&D.
- Enter the cost associated with recycling. Recycling costs include handling, processing, transportation, and other costs associated with recycling C&D. Soils that are used at another location or that are reclaimed count toward recycling.
- Enter Recycling Revenues. Enter only actual revenues received from recycling. Do not enter cost avoidance for recycling revenues.

Reported by: _____
 Company: _____ Contact: _____
 Address: _____ Title: _____
 _____ E-mail address: _____
 Telephone: _____ Fax: _____

Definitions:

Construction and Demolition (C&D) Debris. Waste derived from the construction, renovation, demolition or deconstruction of residential and commercial buildings and their infrastructure. C&D waste typically includes concrete, wood, metals, gypsum wallboard, asphalt, and roofing material.

Other Select Waste (OSW). Construction and demolition debris are the “Other Select Waste” categories for purposes of DoD metric reporting via SW module. If the Other Select Wastes are hazardous they must also be reported in the calendar year HW module.