#### **ENVIRONMENTAL ASSESSMENT**

# FOR

### **CONSTRUCTION OF A WARGAMING CENTER**

AT

### MARINE CORPS BASE QUANTICO, PRINCE WILLIAM COUNTY, VIRGINIA

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Point of Contact: Heather McDuff Command: Natural Resources and Environmental Affairs Branch (NREA) Address: 3250 Catlin Avenue Marine Corps Base Quantico, VA 22134 E-mail: heather.a.mcduff@usmc.mil

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# **1.0 Introduction**

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) 5090.2, which documents the US Marine Corps' (USMC) internal operating instructions on how to implement NEPA. This EA is intended to meet NEPA requirements for construction of a Wargaming Center at Marine Corps Installations – National Capitol Region (MCINCR), Marine Corps Base Quantico (MCBQ).

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**

The Training and Education Command (TECOM), a Command of the United States Marine Corps (USMC) proposes to construct a Wargaming Center, composed of an academic instruction facility (AIF), area distribution node (ADN), and parking structure, at MCBQ.

# **1.2 Location**

This action has been proposed for the site and vicinity of the former Freeney Field, at the northern end of the Marine Corps University (MCU). Base location maps are at Appendix A.

# 2.0 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide a dedicated Wargaming Center to facilitate training in wargame concepts and planning. Approximately 300 personnel would occupy the AIF.

The Proposed Action is needed to provide an Anti-Terrorism/Force Protection-compliant (AT/FP), cost-effective, and readily available space where wargame training, events, and conferences can occur. Due to the security classification of the facility required to conduct wargaming activities, leasing off-base facilities is not a viable option. The facility is required to host and support simulation and modeling of potential future environments (i.e. modeling and simulation of the USMC's capabilities and those of adversaries of the United States). The facility will provide the connectivity necessary to enable it to serve as the central node in network configuration. This classification is also required for the receipt, storage, transmission, and electronic sharing (as appropriate) of highly classified information.

Without the new facility, the USMC would continue to have to spend approximately \$1 million per year in temporary duty for personnel and/or facility lease costs. A dedicated on-base facility would also be able to accommodate classified meetings and events.

# 3.0 Alternatives

The USMC proposes to construct a Wargaming Center AIF, ADN, and parking structure at MCBQ (shown at Appendix B) to provide a centralized location for education in wargaming methodology. This section analyzes two alternatives: the No Action (Alternative A) and one Action Alternative (Alternative B).

# 3.1 Alternative A - No Action

Under the No Action Alternative, the Proposed Action would not occur. The Wargaming Center would not be constructed. The USMC would continue to spend approximately \$1 million per year in personnel temporary duty and/or facility lease costs. The No Action Alternative would not meet the purpose and need for the Proposed Action; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action, not simply conclude no impact, and will serve to establish a comparative baseline for analysis.

### **3.2 Alternative B – Construct a Wargaming Center at MCU**

This alternative would construct an approximately 174 thousand (K) square foot (SF) center, comprised of an 80K SF AIF, 1800 SF ADN, and an adjacent 94K SF parking structure, for about 300 personnel.

The AIF would be a multi-story, brick-faced, cast-stone, reinforced concrete masonry unit (CMU) building. It would have structural steel framing, reinforced masonry walls, brick veneer, reinforced concrete masonry foundation and floors, and a standing seam metal roof. The AIF would feature an auditorium, classrooms, administrative and conference space, and a break room. Utilities would include water and sewer, electrical [to include heating, ventilation, and air conditioning (HVAC) systems], and communications and information systems [including local area network (LAN) systems]. Two 750kW natural gas generators would be provided for the main building, and a 100kW diesel generator would be provided for the ADN. Mechanical systems would include emergency medical communications systems, electrical and fire protection systems, plumbing, and HVAC. AT/FP features and security measures would be provided in compliance with Military Handbook 1024/1, Unified Facilities Criteria (UFC) 4-010-01 Department of Defense (DoD) Minimum Anti-terrorism Standards for Buildings.

Sustainable design principles will be included in the design and construction in accordance with E.O. 13123 and other laws and Executive Orders. The AIF and ADN would be constructed on the former Freeney Field. The parking structure would be constructed on the site of the existing warehouses 709 and 710, which are to be demolished under a separate project. Alternative B is the action sponsor's preferred alternative.

### **3.3 Alternatives Considered but Not Carried Forward for Detailed Analysis**

The following alternatives were considered, but not carried forward for detailed analysis in this EA, as they did not meet the purpose and need for the project.

### 3.3.1 Renovation/Modernization

This is not a viable alternative. There are no facilities at MCBQ that are either available or conducive to renovate or modernize to meet the requirements for a Wargaming facility.

### 3.3.2 Lease

There is no single facility available in the vicinity of MCBQ that would be suitable and able to meet the requirements.

# 4.0 Environmental Impacts

This section presents a description of the environmental resources currently within the proposed action footprint as well as the indirect and direct effects of both alternatives. The CEQ defines direct effects as those effects that are caused by the action and occur at the same time and place (CEQ 1508.8). Conversely, indirect effects are defined by the CEQ as effects that are caused by the action and are later in time or farther removed in distance but are still relatively foreseeable (CEQ 1508.8).

All potentially relevant environmental resource areas were initially considered for analysis in this EA. This section includes air quality, water resources, geological resources, cultural resources, biological resources, land use, visual resources, military training and airspace, noise, infrastructure, transportation, public health and safety, hazardous materials and wastes, socioeconomics, and environmental justice.

# 4.1 Air Quality

### 4.1.1 Regulatory Setting

### 4.1.1.1 National Ambient Air Quality Standards and Criteria Pollutants

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 (SO<sub>2</sub>), particulate matter (PM), ozone, nitrogen dioxide (NO<sub>X</sub>), 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. Prince William County has been designated as a nonattainment area for 8-hour ozone NAAQS. Prince William County is in attainment for PM<sub>2.5</sub>. NO<sub>X</sub> and volatile organic compounds (VOCs) are precursors to ozone formation and are regulated to control ozone pollution.

### 4.1.1.2 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 of the action's impact on regional air quality. *De minimis* levels in the DC region are:

- NO<sub>X</sub>: 100 tons per year (tpy)
- VOC: 50 tpy
- PM<sub>2.5</sub>: 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.

### 4.1.1.3 Permitting

#### New Source Review (Preconstruction Permit)

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 with stationary fuel burning equipment (e.g. emergency generators, boilers) 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 (Operating Permit)

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, Virginia which is an ozone nonattainment 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.

### 4.1.1.4 Greenhouse Gases

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 gas emissions that trap heat in the atmosphere (called the "greenhouse effect"). It is a natural phenomenon that can create 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). GHGs include carbon dioxide (CO2), methane (CH4), nitrogen oxide (NOx), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases including nitrogen trifluoride and hydrofluorinated ethers.

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 (CO<sub>2</sub>e) 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  $CO_2e$  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 CO<sub>2</sub>e 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, basewide CO<sub>2</sub>e 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 CO<sub>2</sub>e or more, and the Title V threshold for GHGs is 100,000 TPY of CO<sub>2</sub>e 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 CO<sub>2</sub>e or more.

Effects on air quality are based on estimated direct and indirect emissions associated with the action alternatives. The region of influence (ROI) for assessing air quality impacts is the air basin in which the project is located,

Estimated emissions from a proposed federal action are typically compared with the relevant national and state standards to assess the potential for increases in pollutant concentrations.

### 4.1.2 Impacts of Alternative A – No Action

Under the No Action Alternative, Alternative A, current conditions would remain and no impacts to MCBQ air quality would occur.

# 4.1.3 Impacts of Alternative B – Construction of a Wargaming Center

Alternative B would not significantly impact air quality at MCBQ, however, the following guidance must be followed:

### 1. Record of Non-Applicability (RONA) (See Appendix C)

General Conformity under the Clean Air Act, Section 176, has been evaluated for the proposed project according to the requirements of MCO 5090.2 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 9.3 tons per year NOx, and 0.71 tons per year VOC. These levels are below the conformity threshold value of 100 tpy NOx and 50 tpy VOC, established by 40 CFR 93.153(b), for a Non-Attainment Area located in an Ozone Transportation Region.

### 2. External Combustion Equipment

Prior to construction, emissions from fuel oil or natural gas fired external combustion sources (boilers, hot water heaters, or other fuel burning equipment) must be evaluated to determine if an air permit is required. Construction may not begin until an air permit applicability evaluation has been performed, and any necessary air permits have been issued by the Virginia Department of Environmental Quality (VDEQ). It may take VDEQ approximately six months to process the application. The NREA Air Program Manager (APM) shall be provided with the specifications on all equipment. The APM will estimate emissions from the project to determine if application is needed. If a permit is required, the application must be submitted to the Virginia Department of Environmental Quality (VDEQ) with a \$5,669 (as of January 1, 2021) non-refundable application fee.

#### 3. Paints, Coatings, and Adhesives

Paints, coatings, and adhesives are to conform to VOC requirements per the Commonwealth of Virginia, State Air Pollution Control Board, Regulations for the Control and Abatement of Air Pollution, 9VAC5 Chapter 45, Consumer and Commercial Products, Part II Emission Standards, Article 5 Emission Standards for Architectural and Industrial Maintenance Coatings; and Article 6 Emission Standards for Adhesives and Sealants.

The proposed action is subject to the following Virginia regulations:

9 VAC 5-45, Article 5 - Emission Standards for Architectural and Industrial Maintenance Coatings:

Any architectural coating that is sold in a container larger than one quart must comply with the VOC emission limit in Table 45-5A.

### 4. Asbestos

This project is required to comply with all applicable federal and state regulations associated with the removal and disposal of Asbestos Containing Materials (ACM). This may include, but is not limited to, obtaining necessary licenses/permits, providing adequate notifications to regulatory agencies, and following the required work practice procedures to ensure safety to individuals and the environment. The following regulations, which may not be a comprehensive list, should be considered prior to and during the project. Any applicable regulatory requirements should be followed.

• Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP) Regulations (40 CFR Part 61, Subpart M)

• Applicable regulations enforced by the Virginia Department of Professional and Occupational Regulation

• Applicable regulations enforced by the Virginia Department of Labor and Industry

5. Controlled Toxins/Safety/Occupational Health – Radon Program

Pursuant to OPNAVINST 5090.1B CH 25-3.2 and the Navy Radon Assessment and Mitigation Program (NAVRAMP), the contractor will conduct radon testing as required. New construction must include Radon-Resistant New Construction (RRNC) methods as described in NAVRAMP. Results must be submitted to the contracting representative.

6. Refrigerant Containing Equipment

Refrigerant Containing Equipment: All work must be performed by a technician certified to the necessary level and in accordance with the base's Refrigerant Management Plan and 40 CFR 82. A copy of the technician's certificate must be submitted to the APM prior to the start of work.

Recovery of existing refrigerant: Recover all existing refrigerant and tag it as "refrigerant recovered" prior to disposal. All applicable hazardous waste disposal and shipping regulations must be complied with. A completed copy of the Refrigerant Service Order Form must be submitted to the APM. A copy of the Refrigerant Service Order Form is at Appendix C.

Installation of new refrigerant containing equipment: A completed copy of the Refrigerant Equipment Reporting Form (Appendix C) for the new refrigerant containing equipment must be submitted to the APM. A non-ODS refrigerant is recommended.

After coordinating with the Public Works Branch to obtain inventory tracking numbers (PW numbers), a list of these numbers shall be submitted to the APM on the Refrigerant Equipment Reporting Form.

### 7. Cutback Asphalt

Emission Standards for Asphalt Paving Operations: Cutback asphalt (asphalt cement that has been liquefied by blending with petroleum solvents) is prohibited except under special

circumstances. The NREA APM must be consulted if the proposed action involves the use of cutback asphalt.

### 8. Traffic Marking

The VOC limit for paints used to mark traffic surfaces is 150 grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, excluding the volume of any water, exempt compounds, or colorant added to tint bases.

### 9. Emergency Generator Procurement/Maintenance

Prior to ordering an emergency generator, consultation with the NREA APM to discuss necessary generator specifications and emission standards is required. New generators must comply with all current emissions standards, including all aspects of 40 C.F.R Part 63 Subpart JJJJ and VDEQ presumptive BACT limits on diesel-fired generators. Potential emissions from emergency generators must be evaluated to determine if an air permit is required. Construction may not begin until an air permit applicability evaluation has been performed, and any necessary air permits have been issued by the VDEQ. It may take VDEQ approximately six months to process the application. The APM shall be provided with the specifications on all equipment. The APM will estimate emissions from the project to determine if application is needed. If a permit is required, the application must be submitted to VDEQ along with a \$5,669 (as of January 1, 2021) non-refundable application fee.

Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The generator's engine must meet the emission requirements in 40 C.F.R. 60.4233, for all pollutants.

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

To qualify as an emergency generator, the unit can only operate when there is an "emergency". In Virginia, "emergency" is defined as:

A condition that arises from sudden and reasonably unforeseeable events where the primary energy or power source is disrupted or disconnected due to conditions beyond the control of an owner or operator of a facility including:

- a. A failure of the electrical grid,
- b. On-site disaster or equipment failure,

c. Public service emergencies such as flood, fire, natural disaster, or severe weather conditions, or

d. An ISO-declared emergency, where an ISO emergency is:

i. An abnormal system condition requiring manual or automatic action to maintain system frequency, to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property,

ii. Capacity deficiency or capacity excess conditions,

iii. A fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel,

iv. Abnormal natural events or man-made threats that would require conservative operations to posture the system in a more reliable state, or

v. An abnormal event external to the ISO service territory that may require ISO action.

"Emergency" also includes operating during brief maintenance and testing exercises. Runtime for maintenance and testing must not exceed 100 hours per calendar year. Consult the APM prior to operation for maintenance and testing purposes.

Emergency generators aboard MCBQ are limited to 500 hours of runtime, including testing and maintenance. Of the 500 hour total, the emergency generator may be operated up to 100 hours per year for maintenance and testing purposes. The emergency generator should be operated as little as possible during projects due to these operating permit and regulatory requirements limiting their operation. The emergency generator should be run only to ensure proper functionality and completeness of repairs. Any additional or unnecessary runtime should be prevented. The MCBQ Environmental Standard Operating Procedures (ESOPs) 04 and 05 for emergency generator procurement and operation and maintenance should be followed at all times.

### 10. Fugitive Dust

The proposed action is subject to the following Virginia regulations:

9 VAC 5-40, Part II, Article 1 - 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:

a. 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.

b. 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.

c. 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.

d. 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.

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

11. Odor

The proposed action is subject to the following Virginia regulations:

9 VAC 5-40, Part II, Article 2 – Emission Standards for Odor:

No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any emissions which cause an odor objectionable to individuals of ordinary sensibility.

# 4.2 Water Resources

This discussion of water resources includes groundwater, surface water, wetlands, floodplains, and shorelines. This section also discusses the physical characteristics of groundwater, surface water, wetlands, floodplains, and shorelines. Wildlife and vegetation are addressed in Section 4.5, Biological Resources.

Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater is used for water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. Sole source aquifer designation provides limited protection of groundwater resources which serve as drinking water supplies.

Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. A Total Maximum Daily Load (TMDL) is the maximum amount of a substance that can be assimilated by a water body without causing impairment. A water body can be deemed impaired if water quality analyses conclude that exceedances of water quality standards occur.

Wetlands are jointly defined by USEPA and USACE as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include "swamps, marshes, bogs and similar areas."

Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body. Floodplain boundaries are most often defined in terms of frequency of inundation, that is, the 100-year and 500-year flood. Floodplain delineation maps are produced by the Federal Emergency Management Agency and provide a basis for comparing the locale of the Proposed Action to the floodplains.

Shorelines can be located along marine (oceans), brackish (estuaries), or fresh (lakes) bodies of water. Physical dynamics of shorelines include tidal influences, channel movement and hydrological systems, flooding or storm surge areas, erosion and sedimentation, water quality and temperature, presence of nutrients and pathogens, and sites with potential for protection or restoration. Shoreline ecosystems are vital habitat for multiple life states of many fish, birds, reptiles, amphibians, and invertebrates. Different shore zones provide different kinds and levels of habitat, and when aggregated, can significantly influence life. Organic matter that is washed onto the shore, or "wrack," is an important component of shoreline ecosystems, providing habitat for invertebrates, soil and organic matter, and nutrients to both the upland terrestrial communities and aquatic ecosystems.

# 4.2.1 Regulatory Setting

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; and 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.

# 4.2.2 Affected Environment

# 4.2.2.1 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.

### 4.2.2.2 Surface Water

The proposed action is located within sight of the Potomac River, and within the Potomac River watershed. This watershed occupies a total of 9,388,800 acres across the states of Maryland, Pennsylvania, Virginia, and West Virginia. There are no streams located within the proposed project footprint.

### 4.2.2.3 Wetlands

There are no wetlands within the proposed action footprint.

### 4.2.2.4 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 proposed project location is depicted on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) number 51153C0318E, panel 318 of 328. The site is located in Flood Zone X, which is an area of minimal flood hazard, and outside of Zone AE. The FIRM is at Appendix D.

# 4.2.3 Impacts of Alternative A – No Action

It is expected that impacts to water resources would remain the same if no action is taken.

### 4.2.4 Impacts of Alternative B – Construction of a Wargaming Center

An E&SC permit will be required for this alternative. A stormwater permit will also be required [Virginia (VA) Stormwater Construction General Permit]. A full E&SC plan and SWPPP will be required as well as stormwater calculations which adhere to the current VA E&SC and VA Stormwater Management Program regulations, and DoD Navy low impact design (LID) policy and EISA 438. Templates for SWPPP creation, E&SC, SWPPP, and LID checklists that will be used to review the plans and specifications submitted for approval are at Appendix D. The contractor should allow at least 120 days prior to the anticipated start date for review and approval of all E&SC and stormwater plan submissions. All plans shall be submitted to the Water Program Manager, NREA for review and approval. Once NREA approves the plans, NREA will forward to VA DEQ for review and issuance of the Stormwater permits have been issued by NREA and VA DEQ. The contractor is responsible for installing initial E&SC control devices prior to any land disturbance and requesting an initial E&SC inspection. The installation of the control measures approved by NREA and inspections must be conducted prior to any land disturbance.

The construction 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 proper installation and maintenance of E&SC measures will minimize the movement of disturbed soils off-site and into the Potomac River watershed. Following project completion, the disturbed area will be seeded and returned to pervious surfaces.

The proposed action alternative would not require fill within the 100-year floodplain, which is considered an RMA under the CBPA. None of the alternatives would adversely affect an RPA or RMA as defined under the CBPA.

The proposed construction project is consistent to the maximum extent practicable with the enforceable policies of Virginia's Coastal Management Plan. The proposed project is not expected to directly affect water resources (including wetlands) and not expected to have adverse effects on fisheries, shorelines, subaqueous lands, dunes, or coastal lands.

Alternative B would not adversely affect wetlands, surface waters, groundwater, CBPA requirements, or floodplain areas.

### **4.3 Geological Resources**

This discussion of geological resources includes topography, geology, and soils.

# 4.3.1 Regulatory Setting

Consideration of geologic resources extends to prime or unique farmlands. The Farmland Protection Policy Act (FPPA) was enacted in 1981 to minimize the loss of prime or unique farmland due to federal actions. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land. The proposed action location is a level, cleared, previously disturbed landscape and has not been utilized for agricultural purposes.

# 4.3.2 Affected Environment

# 4.3.2.1 Topography

The terrain of the proposed project location consists of a cleared and highly disturbed landscape and is characterized by a low gradient. The highest elevation of the footprint is in the western section at roughly 40 ft. The elevation decreases very gradually by roughly 10 ft. to the east and southeastern boundaries.

# 4.3.2.2 Geology

The proposed action would occur within the Mainside 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.

### 4.3.2.3 Soils

The soil type that is dominant within the proposed action area is tetotum fine sandy loam at 0 to 2% slopes. Soil type maps and descriptions for the location is at Appendix E.

It is important to note that extensive land clearing and construction activities have occurred in this area, and the conditions of the soils in this location have been affected by these activities.

Geological resources are analyzed in terms of drainage, erosion, and prime farmland. The analysis of topography and soils focuses on the area of soils that would be disturbed, the potential for erosion of soils from construction areas, and the potential for eroded soils to become pollutants in downstream surface water during storm events. BMPs are identified to minimize soil impacts and prevent or control pollutant releases into stormwater. The potentially affected environment for geological resources is limited to lands that would be disturbed by any proposed facility development or demolition.

### 4.3.3 Impacts of Alternative A – No Action

Under the No Action Alternative, construction of the Wargaming Center facility would not occur

and there would be no change to baseline geology, topography, or soils. Therefore, no significant impacts to geological resources would occur with implementation of the No Action Alternative.

# 4.3.4 Impacts of Alternative B – Construction of a Wargaming Center

A multi-story AIF, parking structure, and ADN would be constructed within the proposed action footprint. 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. With the inclusion of proper E&SC measures, Alternative B is not expected to significantly impact on-site soils.

A geotechnical survey has not been completed for the proposed action. It is advised that a geotechnical engineer survey the underlying soil in the event that these areas should be redeveloped in the future.

# 4.4 Cultural Resources

This discussion of cultural resources includes prehistoric and historic archaeological sites; historic buildings, structures, and districts, and physical entities and human-made or natural features important to a culture, a subculture, or a community for traditional, religious, or other reasons. Cultural resources can be divided into three major categories:

- Archaeological resources (prehistoric and historic) are locations where human activity measurably altered the earth or left deposits of physical remains.
- Architectural resources include standing buildings, structures, landscapes, and other builtenvironment resources of historic or aesthetic significance.
- Traditional cultural properties may include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

# 4.4.1 Regulatory Setting

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.

### 4.4.2 Affected Environment

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.

### 4.4.2.1 Archaeological/Cultural Resources

The proposed MCU site is located within the viewshed of the QMCBHD. MCU has recently been the location of several new construction projects, including the addition to the Gray Research Center and the existing parking garage. The proposed site is previously developed and highly disturbed, therefore, there is a very low potential to find intact archeological or cultural resources or artifacts of significance.

# 4.4.3 Impacts of Alternative A – No Action

Under the No Action Alternative, construction of a Wargaming Center would not occur. This alternative would have no adverse effects upon the NRHP-eligible QMCBHD. Archeological resources would not be impacted.

# 4.4.4 Impacts of Alternative B – Construction of a Wargaming Center

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 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. In 2017, MCBQ and the Virginia State Historic Preservation Office (SHPO) signed a Programmatic Agreement (PA) between the United States Marine Corps and the SHPO for a streamlined review process allowing the MCBQ Cultural Resources Manager (CRM) to expedite reviews for projects where impacts are deemed to be minor or non-existent in scope.

The MCBQ CRM reviewed the proposed action per the Programmatic Agreement and determined that, pursuant to the streamlined review process and through correspondence with the SHPO, the project as planned would have an adverse effect on the NRHP-eligible QMCBHD. Correspondence with the SHPO resulted in the decision to prepare a Memorandum of Agreement (MOA) detailing the requirements necessary for mitigating the adverse effect. Copies of the SHPO correspondence, the draft MOA, and associated documentation are at Appendix F.

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 construction contractor shall contact the base CRM, 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 CRM/NEPA Section per Section 7.0 of this EA
- Redesign project to avoid remains, if possible
- The base CRM/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 Biological Resources

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are usually referred to as vegetation, and animal species as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal.

Within this EA, biological resources are divided into three major categories: (1) vegetation, (2) terrestrial wildlife, and (3) aquatic wildlife. Threatened, endangered, and other special status species are discussed in their respective categories.

# 4.5.1 Regulatory Setting

Special-status species, for the purpose of this EA, are those species listed as threatened or endangered under the Endangered Species Act (ESA) and species afforded federal protection under the Migratory Bird Treaty Act (MBTA).

The Endangered Species Act (ESA), 7 U.S.C. §136, 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.

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 located within the proposed action location. Two active osprey (*Pandion haliaetus*) nests are located on lighting fixtures at Freeney Field.

Bald eagles (*Haliaeetus leucocephalus*), which are afforded federal protection under the MBTA and the Bald and Golden Eagle Protection Act (BGEPA) of 1940, as amended (16 U.S.C. §668-668d, 54 Stat. 250), and are listed as a species of concern in the USFWS Birds of Conservation Concern, 2008, are discussed within the Terrestrial Wildlife section (3.5.2.2) of this EA.

Marine Corps Order 5090.2, 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. According to Chief of Naval Operations Instruction (OPNAVINST) 5090.1B, it is Navy and Marine Corps policy to cooperate with states to protect state-listed species, if mission compatible. Hence, MCBQ also considers project impacts to Virginia-listed rare 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.

# 4.5.2 Affected Environment

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.

### 4.5.2.1 Vegetation

The land area of MCBQ is primarily covered by a forested landscape. Forests account for approximately 90% of the land cover of the base. MCBQ is located within an ecological transition zone inside the Eastern Deciduous Forest Biome of the United States. The major tree types found within the forests, particularly on the Westside of the base, are associated with the Central and Southern forest regions of the United States. The most common tree species found at MCBQ are yellow poplar (*Liriodendron tulipifera*), black oak (*Quercus velutina*), northern red

oak (*Quercus rubra*), white oak (*Quercus alba*), shortleaf pine (*Pinus echinata*), Virginia pine (*Pinus virginiana*) and loblolly pine (*Pinus taeda*). Other species found on the base include sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), hickory (*Carya sp.*), red cedar (*Juniperus virginiana*), black walnut (*Juglans nigra*), black cherry (*Prunus serotina*), and bigtooth aspen (*Populus gradidentata*). If there is an undisturbed clear space, the most likely species to grow in that space is Virginia pine. The proposed project area is currently cleared and non-forested.

Three plant species on MCBQ are federally-listed as threatened or endangered species. These are harperella (*Ptilimnium nodosum*), the small whorled pogonia (*Isotria medeoloides*), and the sensitive joint-vetch (*Aeschynomene virginica*).

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.

The sensitive joint-vetch is a federally-threatened annual legume that is native to the eastern U.S. The plant usually reaches a height of about 3-6 feet in a growing season but may grow as tall as 8 feet. The flowers are usually yellow, streaked red and the fruit is a pod that becomes brown when ripe. The plant inhabits the outer portions of marshes or shorelines that flood twice a day.

### 4.5.2.2 Terrestrial Wildlife

The Indiana bat (*Myotis sodalis*) is a federally-listed endangered terrestrial species that is potentially found at MCBQ. 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 Indiana bat has been detected at MCBQ, but there are no known Indiana bat maternity colonies, summer roosts, or hibernacula on MCBQ.

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. They prefer roosting sites with constant temperatures, high humidity, and no air currents. In summer, they prefer roosts under tree bark, in cavities or crevices of both live and dead trees, and rarely in man-made structures such as barns or sheds (50 C.F.R. part 17). The NLEB was detected at MCBQ starting in 2016. Additionally, two male NLEB were caught via mist netting; one in July 2018, and the other in July 2019 at MCBQ. There are no known NLEB maternity roosts or hibernacula on MCBQ.

The little brown bat (*Myotis lucigus*) and the tri-colored bat (*Perymyotis subflavus*) are listed as state-endangered. Both species have been detected on the base. There are no known little brown bat or tri-colored bat winter hibernacula, summer roosts, or maternity colonies on MCBQ. The bald eagle was removed from the Federal List of Endangered and Threatened Wildlife and

Plants in 2007 due to population recovery. The BGEPA requires a buffer of 660 ft. around a nesting site. Additionally, removal of overstory trees may not occur within 300 ft. of a nest. No bald eagle nests are located within the proposed action location nor is the action footprint within 660 ft. of a bald eagle concentration area.

4.5.2.3 Aquatic Wildlife

Fish

Fish are vital components of aquatic ecosystems. They have great ecological and economic aspects. To protect this resource, the National Oceanic and Atmospheric Administration (NOAA) Fisheries works with the regional fishery management councils to identify the essential habitat for every life stage of each federally managed species using the best available scientific information. Essential fish habitat has been described for approximately 1000 managed species to date. Essential fish habitat includes all types of aquatic habitat, including wetlands, coral reefs, seagrasses, and rivers – all locations where fish spawn, breed, feed, or grow to maturity. Essential fish habitat has not been identified for any fish species located at MCBQ.

### Invertebrates

The yellow lance (*Elliptio lanceolata*), is a freshwater mussel species that is federally-listed as threatened. The species is often found within clean, coarse and medium sand but is also occasionally within gravel substrates. The yellow lance can be found in waterways ranging from medium-sized rivers to small streams and requires clean, moderately flowing water as part of its habitat. It has known populations within the Rappahannock, James, York and Chowan Rivers in Virginia. The species is believed to no longer populate the Potomac River.

The dwarf wedgemussel (*Alasmidonta heterodon*), historically found on portions of MCBQ, is federally-listed as endangered. It is a small bivalve that lives in freshwater streams and requires highly oxygenated and silt-free waters. The dwarf wedgemussel has been historically found within Aquia Creek, which forms the southwest boundary of the installation.

### 4.5.3 Impacts of Alternative A – No Action

Under Alternative A, the proposed project would not occur and there would be no change to biological resources. Therefore, no significant impacts to biological resources would occur with implementation of the No Action Alternative.

# 4.5.4 Impacts of Alternative B – Construction of a Wargaming Center

The proposed project site is a previously developed, cleared parcel of land. Suitable habitat for the threatened or endangered species found at MCBQ is not located at this site, therefore, USFWS consultation was not performed for this location.

Two active osprey nests are located on lighting fixtures within the proposed project footprint at Freeney Field, as shown at Appendix G. Ospreys and their nests are protected by the Migratory

Bird Treaty Act. Generally, migratory bird nesting season is from April 15-September 15. Ospreys may nest as early as the beginning of April. Active nests cannot be disturbed, but they may be removed after the birds leave.

To reduce or eliminate any potential impacts to the Indiana bat as well as the NLEB, MCBQ will adhere to the more stringent Indiana bat time of year restriction (TOYR) from 15 April–15 September (inclusive) for any tree removal required for this project. This includes both species active pup seasons. During this time, no tree removal will occur. All tree removal will be performed outside of the TOYR. If a maternity colony for any state or federally listed bat species is encountered during tree removal activities, the project proponent must cease all tree removal activities and contact their contracting representative and NREA.

# 4.6 Land Use

This discussion of land use includes current and planned uses and the regulations, policies, or zoning that may control the proposed land use. The term "land use" refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions.

# 4.6.1 Regulatory Setting

In many cases, land use descriptions are codified in installation master planning and local zoning laws. Marine Corps Order (MCO) 11010.16 provides guidance administering the Air Installation Compatible Use Zone (AICUZ) program, which recommends land uses that are compatible with noise levels, accident potential, and obstruction clearance criteria for military airfield operations. Applicable AICUZ and accident potential zone maps are at Appendix H.

# 4.6.2 Affected Environment

# 4.6.2.1 Current Land Use Compatibility

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 project would occur on the eastern side of the Mainside of MCBQ. The AICUZ Program delineates APZs, which are areas around an airfield where an aircraft mishap is most likely to happen. APZs are not predictors of accidents nor do they reflect accident probability. The DoD defines an APZ as a planning tool for local planning agencies. The APZs follow departure, arrival, and flight pattern tracks from an airfield and are based upon historical accident data.

# 4.6.3 Impacts of Alternative A – No Action

Under the no action alternative, the current footprint would remain "as is". No new construction associated with the proposed project would occur.

# 4.6.4 Impacts of Alternative B - Construction of a Wargaming Center

The proposed project would have a temporary impact on some of the activities performed in this area.

Hunting and hiking areas exist within 0.5 mile of the proposed project area. The proposed project would not have an adverse effect on hunting or hiking opportunities aboard MCBQ, as there are several areas for recreational opportunities outside of the proposed project footprint. Alternative B would be consistent with the Base Master Plan, the Integrated Land Use Plan, and the Marine Corps University Campus Plan. As this facility would be occupied by USMC personnel, AT/FP requirements regarding restrictions on site planning, including standoff distances, building separation, unobstructed space, drive-up and drop-off areas, access roads, and parking; structural design; structural isolation; and electrical and mechanical design, would be incorporated into the facility design.

### 4.7 Military Training and Airspace

The Federal Aviation Administration (FAA) manages all airspace within the United States and the U.S. territories. Airspace, which is defined in vertical and horizontal dimensions and also by time, is considered to be a finite resource that must be managed for the benefit of all aviation sectors including commercial, general, and military aviation. The action proposed would not occur within a military training area. This project would not have a permanent impact on military training or airspace.

### 4.7.1 Affected Environment

The proposed project site is located outside of the Marine Corps Air Facility's (MCAF) imaginary surfaces, and to the northwest of the accident potential zone (APZ) II area. APZ maps are at Appendix H.

### 4.7.2 Impacts of Alternative A – No Action

Under the no action alternative, the Wargaming Center would not be constructed. Impacts on military training and airspace would not occur as a result of new construction.

### 4.7.3 Impacts of Alternative B - Construction of a Wargaming Center

Alternative B would involve the construction of new structures: an AIF, ADN, and a parking structure. The MCAF must be notified in advance of any planned work that involves the use of a crane, as this could have a potential impact on airspace.

# 4.8 Noise

This discussion of noise includes the types or sources of noise and the associated sensitive receptors in the human environment. Noise in relation to biological resources and wildlife species is discussed in the Biological Resources section. Sound is a physical phenomenon

consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. The perception and evaluation of sound involves three basic physical characteristics:

- Intensity the acoustic energy, which is expressed in terms of sound pressure, in decibels (dB)
- Frequency the number of cycles per second the air vibrates, in Hertz (Hz)
- Duration the length of time the sound can be detected

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

Existing noise levels in the project area are primarily from the MCAF and the CSX rail lines. 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 on the Guadalcanal side of the base, six miles or more from the project area. There would be no additional new sources of noise associated with the sites after demolition/construction activities.

### 4.8.1 Basics of Sound and A-Weighted Sound Level

The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times higher than those of sounds that can barely be detected. This vast range means that using a linear scale to represent sound intensity is not feasible. The dB is a logarithmic unit used to represent the intensity of a sound, also referred to as the sound level. All sounds have a spectral content, which means their magnitude or level changes with frequency, where frequency is measured in cycles per second or Hz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. F or example, environmental noise measurements are usually on an "A-weighted" scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the "A" to the measurement unit in order to identify that the measurement has been made with this filtering process (dBA). In this document, the dB unit refers to A-weighted sound levels. Table 4.8-1 (below) provides a comparison of how the human ear perceives changes in loudness on the logarithmic scale.

Noise levels from aircraft operations that exceed background noise levels at an airfield typically occur beneath main approach and departure corridors, in local air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft in flight gain altitude, their noise contributions drop to lower levels, often becoming indistinguishable from the background noise.

Change	Change in Perceived Loudness
3 dB	Barely perceptible
5 dB	Quite noticeable
10 dB	Dramatic – twice or half as loud
20 dB	Striking – fourfold change

 Table 4.8-1
 Subjective Responses to Changes in A-Weighted

Figure 4.8-1 below (Cowan, 1994) provides a chart of A-weighted sound levels from typical noise sources. Some noise sources (e.g., air conditioner, vacuum cleaner) are continuous sounds that maintain a constant sound level for some period of time. Other sources (e.g., automobile, heavy truck) are the maximum sound produced during an event like a vehicle pass-by. Other sounds (e.g., urban daytime, urban nighttime) are averages taken over extended periods of time. A variety of noise metrics have been developed to describe noise over different time periods, as discussed below.



Figure 4.8-1 A-Weighted Sound Levels from Typical Sources

### 4.8.2 Noise Effects

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

# 4.8.3 Nonauditory Health Effects

Studies have been conducted to examine the nonauditory health effects of aircraft noise exposure, focusing primarily on stress response, blood pressure, birth weight, mortality rates, and cardiovascular health. Exposure to noise levels higher than those normally produced by aircraft in the community can elevate blood pressure and also stress hormone levels. However, the

response to such loud noise is typically short in duration: after the noise goes away, the physiological effects reverse and levels return to normal. In the case of repeated exposure to aircraft noise, the connection is not as clear. The results of most cited studies are inconclusive, and it cannot be conclusively stated that a causal link exists between aircraft noise exposure and the various type of nonauditory health effects that were studied (DoD Noise Working Group, 2009).

### 4.8.4 Regulatory Setting

Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 A-weighted decibels (dBA) over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hourperiod. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

The joint instruction, Chief of Naval Operations Instruction (OPNAVINST) 11010.36C and MCO 11010.16, Air Installations Compatible Use Zones (AICUZ) Program, provides guidance administering the AICUZ program which recommends land uses that are compatible with aircraft noise levels.

### 4.8.5 Affected Environment

Many components may generate noise and warrant analysis as contributors to the total noise impact. The predominant noise sources consist of aircraft operations, both at and around the airfields, as well as in the airspace and on ranges. Other components such as construction, aircraft ground support equipment for maintenance purposes, and vehicle traffic produce noise, but such noise generally represents a transitory and negligible contribution to the average noise level environment. The federal government supports conditions free from noise that threaten human health and welfare and the environment. Response to noise varies, depending on the type and characteristics of the noise, distance between the noise source and whoever hears it (the receptor), receptor sensitivity, and time of day. A noise sensitive receptor is defined as a land use where people involved in indoor or outdoor activities may be subject to stress or considerable interference from noise. Such locations or facilities often include residential dwellings, hospitals, nursing homes, educational facilities, and libraries. Sensitive receptors may also include noise-sensitive cultural practices, some domestic animals, or certain wildlife species. The nearest sensitive receptors are dwellings and businesses in the town of Quantico, and the Gray Research Center, which are located within 0.25 miles of the project site.

### 4.8.6 Environmental Consequences

Existing noise at and around the project area is largely attributed to activities associated with construction and/or demolition, passenger and freight trains on the CSX rail lines, and aircraft operations from the MCAF.

**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 construction (i.e., noise from construction equipment, supply trucks, and worker vehicles). The proposed action alternative would not have a permanent increase on noise levels.

Noise associated with construction activities under Alternative B would be temporary. Given the type and duration of the noise to be generated, the ambient noise level adjacent to the project site, and the lack of certain noise sensitive receptors (i.e. schools and hospitals), noise generated by construction activities is not expected to result in significant noise impacts. No post-construction noise is expected at the site.

### 4.9 Transportation

This discussion of transportation includes all of the air, land, and sea routes with the means of moving passengers and goods. A transportation system can consist of any of the following: roadways, bus routes, railways, subways, bikeways, trails, waterways, airports, and taxis, and can be looked at on a local or regional scale.

### 4.9.1 Regulatory Setting

EO 13693 encourages the coordination of federal real property discussions with local communities in an effort to encourage planned transportation investments that aim to support public transit access.

### 4.9.2 Affected Environment

The proposed action includes the construction of a Wargaming Center on and adjacent to a parking lot, and a new parking structure.

### 4.9.3 Impacts of Alternative A – No Action

Under the no action alternative, the Wargaming Center and parking structure would not be constructed. The Freeney Field parking lot would remain "as is", and the new parking structure would not be built.

#### 4.9.4 Impacts of Alternative B - Construction of a Wargaming Center

Alternative B would involve the construction of a Wargaming Center and parking structure. Impacts to transportation networks (ie. roads) due to construction activity would be temporary in nature. No permanent negative impacts would occur to the existing transportation network of the base due to the implementation of Alternative B.

### 4.10 Public Health and Safety

This discussion of public health and safety includes consideration for any activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of members of the public. A safe environment is one in which there is no, or optimally reduced, potential for death, serious bodily injury or illness, or property damage. The primary goal is to identify and prevent potential accidents or impacts on the general public. Public health and safety within this EA discusses information pertaining to community emergency services, construction activities, operations, and environmental health and safety risks to children.

Community emergency services are organizations which ensure public safety and health by addressing different emergencies. The three main emergency service functions onboard MCBQ include police, fire and rescue service, and emergency medical service.

Public health and safety during construction, demolition, and renovation activities is generally associated with construction traffic, as well as the safety of personnel within or adjacent to the construction zones.

Operational safety may refer to the actual use of the facility or built-out proposed project, or training or testing activities and potential risks to inhabitants or users of adjacent or nearby land and water parcels. Safety measures are often implemented through designated safety zones, warning areas, or other types of designations.

Environmental health and safety risks to children are defined as those that are attributable to products or substances a child is likely to come into contact with or ingest, such as air, food, water, soil, and products that children use or to which they are exposed.

### 4.10.1 Regulatory Setting

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

Many portions of MCBQ consist of historic munitions impact sites. The proposed project location is not an identified munitions response/unexploded ordnance (UXO) or an installation remediation area.

### 4.10.2 Impacts of Alternative A – No Action

This alternative would maintain the status quo and would not have additional effects on health and safety.

# 4.10.3 Impacts of Alternative B - Construction of a Wargaming Center

Although the project area is not within any known munitions response sites, MCBQ includes active and former ranges and there is always the potential to encounter unexploded military munitions, discarded military munitions, and/or munitions and explosives of concern during excavating activities and earth disturbing activities. The following guidance must be followed:

According to the MCO 5090.2, Chapter 10, Section 2, Paragraph 10221, if contamination is discovered during construction and it is Defense Environmental Restoration Program (DERP) eligible, NAVFACENGCOM 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.

### 4.11 Solid Wastes

The solid waste contained in the respective sections addresses issues related to the use and management of solid waste at MCBQ.

### 4.11.1 Alternative A – No Action

This alternative would have no effect on general procedures and practices for solid waste management at MCBQ.

# 4.11.2 Alternative B – Construction of a Wargaming Center

This alternative would result in construction and 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 (Appendix I) to NREA within 30 days of the close of the project, and no later than October 15, to be included in annual report submissions. All spoils and debris generated by the demolition operation shall be transported off base and disposed of in accordance with all federal, state, and local regulations.

The construction 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.

# **5.0 Cumulative Impacts**

This section defines cumulative impacts, describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, analyzes the incremental interaction the proposed action may have with other actions, and evaluates cumulative impacts potentially resulting from these interactions.

# 5.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in 40 CFR section 1508.7 as "the impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact analysis document.

In addition, CEQ and USEPA have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ 2005) and Consideration of Cumulative Impacts in EPA Review of NEPA Documents (USEPA 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (1997) states that cumulative impact analyses should

"...determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts...[and]...focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

• Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?

• If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?

• If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

### 5.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the study area delimits the geographic extent of the cumulative impacts analysis. In general, the study area will
include those areas previously identified in Section 4 for the respective resource areas. The time frame for cumulative impacts centers on the timing of the proposed action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelate to the proposed action, the analysis employs the measure of "reasonably foreseeable" to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for EISs and EAs, management plans, land use plans, and other planning related studies.

### 5.3 Past, Present, and Reasonably Foreseeable Actions

This section will focus on past, present, and reasonably foreseeable future projects at and near the proposed project location. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 5.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Projects included in this cumulative impacts analysis are listed in Table 5-1 and briefly described in the following subsections.

### 5.3.1 Past Actions

- Construction of Gray Research Center and Warner Center expansion
- Demolition of Edson Hall
- Demolition of the Hostess House
- Demolition of the base thrift store
- Construction of a Staff Non Commissioned Officers Academy (SNCOA) barracks
- Construction of a SNCOA Academic Instruction Facility
- Construction of a multi-story parking structure

### 5.3.2 Present and Reasonably Foreseeable Actions

- Construction of a Training and Education Command Facility
- Replacement of Barracks Row Waterline
- Construction of Main Gate, Fuller Road

### Future projects:

• Cherry Hill Third Track

- Repairs and Upgrades to Quantico Rail Station
- Repairs and Upgrades to Barnett Avenue
- Fuller Road repairs and widening
- Little Creek Stream Stabilization Project
- Infrastructure reset of MCBQ (multiple projects basewide)

#### **5.4 Cumulative Impact Analysis**

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible. The analytical methodology presented in Section 4, which was used to determine potential impacts to the various resources analyzed in this document, was also used to determine cumulative impacts.

### 6.0 Other Considerations Required By NEPA

# <u>6.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations</u>

In accordance with 40 Code of Federal Regulations (CFR) section 1501.3(b), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action and the objectives of federal, regional, state and local land use plans, policies, and controls. Table 6-1 identifies the principal federal and state laws and regulations that are applicable to the Proposed Action, and describes briefly how compliance with these laws and regulations would be accomplished.

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	Status of Compliance
National Environmental Policy Act (NEPA); CEQ NEPA implementing regulations;	EA - Compliant
Navy/USMC procedures for Implementing NEPA	
Clean Air Act	Compliant
Clean Water Act	Compliant
National Historic Preservation Act	In progress
Migratory Bird Treaty Act	Compliant
Bald and Golden Eagle Protection	Compliant
Endangered Species Act	Compliant
	Compliant – Proposed action is not a
Comprehensive Environmental Response and Liability Act	CERCLA site or a current hazardous
	waste generator
	Compliant – Proposed action location is
Persurge Conservation and Persovery Act	not within a former munitions site, does
Resource Conservation and Recovery Act	not contain contamination, and is not a
	hazardous waste storage location

Table 6-1	<b>Principal Federa</b>	l and State Laws	Applicable to the	<b>Proposed Action</b>

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	Status of Compliance
	Compliant – If contamination is
	discovered during excavation or
Toxic Substances Control Act	construction activities Public Health and
	Safety guidance in Section 4 will be
	followed
	Compliant - Proposed action will occur
Executive Order 11988, Floodplain Management	outside of a 100-year floodplain and
	within an area of minimal risk
	Compliant - If those conditions outlined
Executive Order 12088, Federal Compliance with Pollution Control Standards	in the Executive order are encountered,
	guidance in Section 4 will be followed
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority	Compliant
Populations and Low-income Populations	
Executive Order 13045, Protection of Children from Environmental Health Risks and	Compliant
Safety Risks	
Executive Order 13423, Strengthening Federal Environmental, Energy, and	Compliant
Transportation Management	

### Table 6-1 Principal Federal and State Laws Applicable to the Proposed Action

### 7.0 Conclusions and Determinations

In the short-term, effects to the human environment with implementation of the proposed action would primarily relate to the construction activity itself. Air quality and recreational opportunities would be temporarily impacted during the implementation of the proposed action however after the completion of construction, those impacts would be non-existent. Potential impacts to water quality will be minimized by permanently leaving BMPs in place.

The proposed action would not result in any impacts that would significantly reduce environmental productivity or permanently narrow the range of beneficial uses of the environment. If all guidance is followed, the proposed Construction of a Wargaming Center would not have any significant impacts to the human environment.

### 8.0 List of Agencies and Persons Contacted

Natural Resources and Environmental Affairs Branch, Installation and Environment Division,
Marine Corps Base Quantico, VA 22134
Capt. Travis McWhirter, Acting Head
Mr. John Carey, Environmental Planning Section Head
Mr. J. David Grose, Environmental Compliance Section Head
Mr. John Rohm, Natural Resources Section Head
Ms. Christa Nye, Fish, Wildlife and Agronomy Program Manager
Mr. Ronald Moyer, Forestry Section Head
Mrs. Catherine Roberts, Cultural Resources Manager
Ms. Abbigale Anderson, AECOM, Air Program
Mr. Jonmark Sullivan, Water Program Manager
Mr. David Norris, Hazardous Waste Program Manager
Ms. Marilisa Porter, Solid Waste Program Manager
Mr. Brian Ventura, Hazardous Materials Program Manager

Mr. Evan Gordon, Associate Counsel, MCB Quantico

### 9.0 Public and Agency Participation & Intergovernmental Coordination

Regulations from the Council on Environmental Quality (CEQ) direct agencies to involve the public in preparing and implementing their NEPA procedures.

The EA will be made available on the Marine Corps Base Quantico website at:

http://www.quantico.marines.mil/Offices-Staff/G-F-Installation-and-Environment/Natural-Resources-Environmental-Affairs/

The USMC has consulted with the Virginia State Historic Preservation Officer (SHPO) on all related issues pertaining to the proposed action.

### **10.0 References**

40 CFR parts 1500-1508 (2020), Council on Environmental Quality.

40 CFR parts 1500-1508 (1978), 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.

ARCADIS U.S. Inc. (2014). Range Vulnerability Environmental Assessment (REVA) 5-Year Review, Marine Corps Base Quantico.

Atkins (2015). Marine Corps Base Quantico Master Plan Update. The Louis Berger Group.

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).

DoD Directive Number 4700.4, Natural Resources Management Program. 24 January 1989.

Endangered Species Act, 1973 (7 U.S.C. §136, 16 U.S.C. §1531 et seq.).

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

E.O. 12898 (As amended by EO 12948), Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, 1994.

E.O. 13045 (As amended by EO 13296), 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.

Eyre, F.H., 1980, Forest Cover Types of the United States and Canada: Society of American Foresters, 148 pp.

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 5090.2, 2018.

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.).

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.

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

NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions, draft, 2010. Council on Environmental Quality.

U.S. Department of Agriculture

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.

Appendix A Location Maps and Aerial Photos





0.11 km 0.08 mi 0.04

UNCLASS//FOUO

Projection - WGS84 Web Mercator Author - Web AppBuilder for ArcGIS Date - August 11 2020

Reasonable efforts have been made to ensure the accuracy of this map. The map user bears responsibility for the appropriate use of the information with respect to possible errors.



Appendix B Proposed Academic Instruction Facility, Area Distribution Node, and Parking Structure

![](_page_45_Picture_0.jpeg)

![](_page_46_Picture_0.jpeg)

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Appendix C Air Quality Methodology, Calculations, and Requirements

#### Record of Non-ApplicAbility (RONA) for General Conformity

Project Name		
Project Number		
Project Contact		

General Conformity under the Clean Air Act, Section 176(c) has been evaluated for the project described above according to the requirements of Title 40 Code of Federal Regulations (CFR) Part 93 and the applicable State Implementation Plan. The requirement of a conformity determination under this rule is not applicable to this project/action because:

The project/action qualifies as an exempt action. The applicable exemption citation is:

Example: 40 CFR 93.153(c)(2)(xiv) Transfers of owership, interests, and titles in land, facilities, and real and personal properties, regardless of the form or method of the transfer. Note: Exemptions must be contained in the State Implementation Plan.

#### OR

- Total direct and indirect emissions from this project/action have been determined to be below the *de minimus* threshold for conformity purposes estimated at:
  - tons/year of NOx tons/year of VOC tons/year of PM2.5 tons/year of CO<sub>2</sub> tons/year of

These levels are below the conformity threshold values established at 40 CFR 93.153(b), and supporting documentation and emission estimates are:

Attached

Appear in the NEPA Documentation

Other

ENVIRONMENTAL COORDINATOR (title and signature)

DATE

MCBQ Refrigerant Equipment Reporting Form FAX TO NREA AIR PROGRAM MANAGER AT (703) 784-4953 WITHIN 24 HOURS

Building Number:	New Unit Installation			
Specific Location:	Replacement Unit     Unit Disposal			
Date Installed or Disposed:	Refrigerant Charge			
 PW Number (lowest):	Circuit Number	Refrigerant Type	Charge (lbs)	
Manufacturer:				
Model:				
Serial Number:				
Choose One:				
Comfort Cooling	Appliance Type:			
Commercial Industrial Process Other	Chiller, Heat Pump, Wind	dow Unit, Refrigerator, etc.		
If disposed of, was the unit tagged "Refrigerant Recovered"? $\Box$	Yes 🗌 No			
Amount of Recovered Refrigerant:				
Recovery Vacuum Level Achieved:				
NREA Processing: Date Received:  Entered in RCM				

### MCBQ Refrigerant Service Order Form

Work Order: Date Issued: Technicians: Refrigerant Type:	Completed:	Building Num PW Number ( Manufacturer Model: Serial #: lb oz	ber: lowest): :: Circuit 2 Charge: _ Circuit 4 Charge: _	lb oz	
<b>Did you dispo</b> Refrigerant Re	se of the unit? If checked, then complete this covered Unit Tagged - "Refrigerant Reco	section.	um Level:	8.2 Inches	
<u>Service Descriptio</u>	n Notes (optional):				
<u>Refrigerant</u>	Cylinder ID	Туре	Condition	Quantity	
Recovered				lb oz	
				lb oz	
				lb oz	
411-1				lb oz	
Added				lb oz	
				lb oz	
<b>Did an acciden</b> Estimated Amount Description:	Did an accidental release of more than a "de minimis" amount occur? If checked, then complete this section.      Estimated Amount Released: lb oz      Description:				
<u>Leaks</u>		Leak Notes	Exact location of leak a	nd description of how repaired.	
Leak Found Leak Type: Leak Repaired	Date: Date: prification Test Date:				
Method: Follow-up Ver Test done with uni Method:	ification Test Date:				
NREA Processing Date Received:	NREA Processing:         Date Received:          Entered in RCM				
	FAX TO AIR PROGRAM MANAGER AT (703) 784-4953 WITHIN 24 HOURS OF COMPLETION.				

### Appendix D FEMA FIRM

![](_page_55_Figure_0.jpeg)

### Appendix E Soil Survey Map Erosion & Sediment Control Plan

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USDA Natural Resources Conservation Service Web Soil Survey National Cooperative Soil Survey 6/23/2020 Page 1 of 3

Area of Intere	<b>est (AOI)</b> Area of Interest (AOI)	Spo Sto	bil Area ny Spot	The soil surveys that comprise your AOI were mapped at 1:15,800.
Soils Soils Soils Special Po Special Po	Soil Map Unit Polygons Soil Map Unit Lines Soil Map Unit Points <b>int Features</b> Blowout	Image: Weight of the second secon	y Stony Spot t Spot ner ecial Line Features	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.
Image: Second state       Image: Second state         Image: Second state       Image: Second state </td <td>Borrow Pit Clay Spot Closed Depression Gravel Pit 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</td> <td>Street       Transportation       +++     Rai       ~     Inte       ~     US       ~     Loc       Background     Aer</td> <td>eams and Canals Is erstate Highways Routes jor Roads cal Roads rial Photography</td> <td><ul> <li>Please rely on the bar scale on each map sheet for map measurements.</li> <li>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</li> <li>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.</li> <li>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</li> <li>Soil Survey Area: Prince William County, Virginia Survey Area Data: Version 16, Sep 16, 2019</li> <li>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</li> <li>Date(s) aerial images were photographed: May 3, 2015—Aug 1, 2019</li> <li>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.</li> </ul></td>	Borrow Pit Clay Spot Closed Depression Gravel Pit 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	Street       Transportation       +++     Rai       ~     Inte       ~     US       ~     Loc       Background     Aer	eams and Canals Is erstate Highways Routes jor Roads cal Roads rial Photography	<ul> <li>Please rely on the bar scale on each map sheet for map measurements.</li> <li>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)</li> <li>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.</li> <li>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</li> <li>Soil Survey Area: Prince William County, Virginia Survey Area Data: Version 16, Sep 16, 2019</li> <li>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</li> <li>Date(s) aerial images were photographed: May 3, 2015—Aug 1, 2019</li> <li>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.</li> </ul>

![](_page_58_Picture_2.jpeg)

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ТеА	Tetotum fine sandy loam, 0 to 2 percent slopes	7.1	100.0%
Totals for Area of Interest		7.1	100.0%

![](_page_59_Picture_4.jpeg)

### Appendix F SHPO Correspondence and Draft Memorandum of Agreement

![](_page_61_Picture_0.jpeg)

#### UNITED STATES MARINE CORPS MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION

ARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGIO MARINE CORPS BASE QUANTICO 3250 CATLIN AVENUE QUANTICO VIRGINIA 22134 5001

IN REPLY REFER TO: 5090 B 046 JUN 1 9 2020

Ms. Julie Langan State Historic Preservation Officer Department of Historic Resources 2801 Kensington Ave. Richmond, VA 23221

![](_page_61_Picture_6.jpeg)

Dear Ms. Langan:

#### SUBJECT: CONSTRUCTION OF P719, THE WARGAMING CENTER

Marine Corps Installations National Capital Region - Marine Corps Base Quantico (MCINCR-MCBQ; Base) is initiating consultation for the subject undertaking in accordance with Section 106 of the National Historic Preservation Act of 1966 as amended. The Base proposes to construct three new structures within the viewshed of the Quantico Marine Corps Base Historic District – The Wargaming Center, a parking structure to accommodate this facility, and an annex node for required communications. The Wargaming Center and supporting structures will be located along both sides of Broadway Avenue and adjacent to the campus of Marine Corps University. In concert with technical review provided by Virginia State Historic Preservation Office personnel, MCINCR-MCBQ has determined the façade of the Wargaming Center is not fully consistent with "Georgian Revival" design principles despite several amendments. Budget constraints dictate no further design changes are possible at this time; therefore, the structure will constitute an adverse effect to the historic district. Architectural elevations and renderings for the three structures are enclosed for your review

MCINCR-MCBQ proposes to enter into a Memorandum of Agreement to mitigate the potential adverse effect to the Quantico Marine Corps Base Historic District. Please indicate if you concur with this course of action by responding to the Cultural Resource Manager, Catherine Roberts, at (703) 432-6781 or catherine.roberts@usmc.mil. Please acknowledge receipt by countersigning and returning this letter.

Sincerely,

Inn

R. L. PRINGLE Assistant Chief of Staff Installation & Environment Division By direction of the Commander

CONCUR: This project is an adverse effect to the Historic District. VDHR #2019-0689. Enclosure 1. Architectural Elevations and Renderings for P719 The Wargaming Center 7/1/20 State Historic Preservation Officer Date X Please Continue to Consult with DKR to develop milightim to be included in a Memorandum of Agreement.

#### MEMORANDUM OF AGREEMENT BETWEEN THE UNITED STATES MARINE CORPS

MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION-MARINE CORPS BASE QUANTICO AND THE VIRGINIA STATE HISTORIC PRESERVATION OFFICER REGARDING THE WARGAMING CENTER AT MARINE CORPS BASE QUANTICO, VIRGINIA

WHEREAS, the Marine Corps Installations National Capital Region-Marine Corps Base Quantico (MCINCR-MCBQ) proposes to construct a new Wargaming Center (Undertaking) at Marine Corps Base Quantico (MCBQ) to act as the focal point within the Marine Corps for all matters pertaining to wargaming; and

WHEREAS, the MCINCR-MCBQ has consulted with the Virginia State Historic Preservation Officer (SHPO) pursuant to 36 C.F.R Part 800 regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108); and

WHEREAS, the MCINCR-MCBQ, in consultation with the SHPO, has defined the Undertaking's Area of Potential Effects (APE) as <mark>(insert description from EA here)</mark>, as shown in <mark>Attachment A (provide APE map from EA)</mark>; and

WHEREAS, the MCINCR-MCBQ has determined, in consultation with the SHPO, that the APE includes the Quantico Marine Corps Base Historic District (Historic District), (DHR Inventory No. 287-0010-0038), a historic district listed in the National Register of Historic Places (NRHP); and

WHEREAS, the MCINCR-MCBQ has determined, in consultation with the SHPO, that the Undertaking will have adverse effects on the Historic District by introducing a new element into the Historic District's view shed that is incompatible with its historic character; and

WHEREAS, the MCINCR-MCBQ has determined, in consultation with the SHPO, that the Undertaking will have no effect archaeological resources or properties of traditional, religious, or cultural significance to any Native American tribes present within the APE; and

WHEREAS, the MCINCR-MCBQ has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect and has provided the ACHP an opportunity to participate in consultation on this MOA with specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

WHEREAS, the MCINCR-MCBQ shall file an executed copy of this Agreement with the ACHP pursuant to 36 C.F.R. § 800.6(b)(1)(IV) prior to proceeding with the Undertaking.

WHEREAS, pursuant to 36 C.F.R. § 800.2(c)(3), the MCINCR-MCBQ has notified Stafford, Fauquier and Prince William Counties, Virginia of the Undertaking and its effect on cultural resources, and has invited Memorandum of Agreement Regarding Wargaming Center Marine Corps Base Quantico, Virginia Page  ${\bf 2}$  of  ${\bf 10}$ 

the Counties to participate in the consultation, and Stafford County elected to participate as a Consulting Party and sign as a Concurring Party, Fauquier County declined to participate, and Prince William County did not respond; and

WHEREAS, the MCINCR-MCBQ, in accordance with 36 CFR 800.2(d), informed the public of the Undertaking and solicited the public's views on the Undertaking's effects on historic properties by posting a notice on the MCINCR-MCBQ web site with a thirty (30)-day public comment period from need date range here, and no comments were received; and

WHEREAS, the MCINCR-MCBQ and SHPO agree to execute this MOA in counterparts with a separate signature page for each Signatory, and the exchange of copies of this MOA and of signature pages by facsimile or by electronic transmission shall constitute effective execution and delivery of this MOA to the parties and may be used in lieu of the original MOA for all purposes. Signatures of the parties transmitted by facsimile or electronic transmission shall be deemed to be their original signatures for all purposes; and

WHEREAS, implementation and fulfillment of the actions described in the Stipulations in this MOA are wholly and entirely contingent upon the approval and execution of the Undertaking and upon the MCINCR-MCBQ's receipt of project funding.

NOW, THEREFORE, the MCINCR-MCBQ and the SHPO agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

#### Stipulations

I. Professional Qualifications

All work carried out pursuant to this MOA shall be conducted by, or under the direct supervision of, an individual or individuals who meet(s), at minimum, the "Secretary of the Interior's Professional Qualifications Standards" (48 FR 44738-9, September 29, 1983) in the appropriate discipline.

II. Historic District Management Plan

Within two (2) years of the execution of this MOA, the MCINCR-MCBQ shall prepare a Historic District Management Plan for MCBQ, to include the following:

A. History Landscape Survey: The Historic Landscape Survey shall include natural features, topography, land use, spatial organization, vegetation, small-scale features, views and vistas. The survey will determine if there are landscapes at MCBQ that are eligible for inclusion in the NRHP. Memorandum of Agreement Regarding Wargaming Center Marine Corps Base Quantico, Virginia Page  ${\bf 3}$  of  ${\bf 10}$ 

- B. Historic District Neighborhood Boundaries
  - 1. The Historic District Management Plan shall establish Neighborhood boundaries, which will create smaller areas within the Historic District based upon careful consideration of historic and existing architectural and landscape character, current and past land uses, construction periods, concentration of contributing resources, and properties individually eligible for listing on the NRHP. Are there any individually eligible properties?
  - 2. The Neighborhood boundaries shall reflect the six themes found within the Historic District and their respective significance based on distinctive histories, architectural types, and styles.
    - a. Aviation
    - b. Education
    - c. First Permanent Construction
    - d. Naval Clinic
    - e. African American Marine Barracks
    - f. Industry
- C. Historic District Design Manual: The Historic District Design Manual shall outline design principles associated with architectural styles located within each Neighborhood. The design principles shall be based upon and consistent with sound and accepted preservation practices and standards as established and revised in relevant NPS publications and guidance documents, such as the Preservation Briefs and Preservation Tech Notes series, The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes (National Park Service 1996), Preservation Bulletin 36: Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes, and Historic Fortification Preservation Handbook (National Park Service, NPS 2003). The Design Manual shall, at a minimum, address the following:
  - The array of treatment options (rehabilitation, restoration, preservation) for existing historic buildings, structures, objects, and landscapes;
  - 2. Routine maintenance and repair activities;
  - 3. Appropriate design, massing, height, scale, materials, location, spatial relationships, and density for new construction and additions to existing buildings or structures within each Neighborhood;
  - 4. Significant Historic Landscapes identified by Historic Landscape Survey as described in Stipulation II.A; and
  - 5. Potential to affect archaeological sites during ground disturbing activities.
- D. Except as otherwise stated elsewhere in the Agreement, the MCINCR-MCBQ shall submit the materials specified in Stipulation

Memorandum of Agreement Regarding Wargaming Center Marine Corps Base Quantico, Virginia Page  ${\bf 4}$  of  ${\bf 10}$ 

II, above, to the SHPO and Consulting Party for review and approval. The MCINCR-MCBQ shall address all comments from the SHPO and Consulting Party received within 30 days of confirmed receipt of the materials. If the SHPO or Consulting Party does not respond within 30 days of receipt of the documentation materials the MCINCR-MCBQ may assume acceptance. The MCINCR-MCBQ shall provide to the SHPO and Consulting Party one (1) hardcopy each of all documentation materials and one (1) electronic copy each of the documentation materials in Adobe® Portable Document Format (.pdf).

- III. Unanticipated Discoveries (Non-Human Remains)
  - A. In the event that a previously unidentified archaeological resource is discovered during ground-disturbing activities associated with the Undertaking, MCINCR-MCBQ shall require the construction contractor to immediately halt all construction work involving subsurface disturbance in the area of the resource and in surrounding areas where additional subsurface features can reasonably be expected to occur. MCINCR-MCBQ shall have an archaeologist meeting the Standards described in Stipulation I inspect the work site and determine the general boundary and nature of the archaeological property. The archaeologist shall investigate the resource and provide an assessment of integrity and NRHP eligibility to MCINCR-MCBQ. Construction may proceed outside of the site boundary once it has been determined.
  - B. MCINCR-MCBQ shall then notify the SHPO of the discovery. If the archaeological resource is, or has the potential to be, of Native American origin, MCINCR-MCBQ shall also notify any federally or state recognized Indian tribe(s) that might attach religious and cultural significance to the affected property and the SHPO within forty-eight (48) hours of the discovery in accordance with 36 C.F.R. § 800.13(b)(3). The notifications shall describe MCINCR-MCBQ's assessment of the NRHP eligibility of the property and the proposed actions to resolve the adverse effects. In accordance with 36 C.F.R. § 800.13 (b)(3), the SHPO, federally and state recognized tribes, as appropriate shall respond within forty-eight (48) hours of the notification.
  - C. If MCINCR-MCBQ, in consultation with the SHPO and other Consulting Party, determines the resource to be eligible for listing in the NRHP Criteria (36 C.F.R. § 60.4), MCINCR-MCBQ shall ensure development of a proposed treatment plan to resolve any adverse effects on historic properties. MCINCR-MCBQ shall provide the treatment plan to the SHPO, federal and state recognized Indian tribes, for review and comment for a period of five (5) working days. MCINCR-MCBQ shall take into account the recommendations received from the SHPO and Consulting Party within the five (5)-day review period regarding the NRHP eligibility of the resource and the proposed treatment plan, and

then carry out appropriate actions. Work in the affected area may not proceed until the development and implementation of appropriate data recovery or other recommended mitigation procedures. MCINCR-MCBQ shall provide the SHPO, and make available to any federally or state recognized Indian tribe(s) that might attach religious and cultural significance to the affected property, consulting Party, and the interested public, a report on the mitigation actions when they are completed.

- D. If MCINCR-MCBQ, in consultation with the SHPO and other consulting Party, determines the resource to be ineligible for listing the NRHP, work may resume in the affected area.
- IV. Treatment of Human Remains

MCINCR-MCBQ shall make all reasonable efforts to avoid disturbing gravesites, including those containing Native American human remains and associated funerary artifacts. MCINCR-MCBQ shall treat all such gravesites in a manner consistent with the ACHP "Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects" (23 February 2007).

- A. Human remains and associated funerary objects encountered during the course of actions taken as a result of this MOA shall be treated in a manner consistent with the provisions of the Virginia Antiquities Act, Section 10.1-2305 of the Code of Virginia and its implementing regulations, 17 VAC5029, adopted by the Virginia Board of Historic Resources and published in the Virginia Register on 15 July 1991, and the Native American Graves Protection and Repatriation Act (25 USC 3001) and its implementing regulations, 36 CFR §10. In accordance with the regulations stated above, MCINCR-MCBQ may obtain a permit from the SHPO for the archaeological removal of human remains should removal be necessary.
- B. MCINCR-MCBQ shall treat all burial sites, human remains, and funerary objects with dignity and respect. MCINCR-MCBQ will follow the applicable federal laws related to the treatment of buried human remains including the National Historic Preservation Act (54 U.S.C. § 300101 et seq.), Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.), and the Archaeological Resources Protection Act (16 U.S.C. §470aa et seq.). MCINCR-MCBQ will also follow the ACHP "Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects" (February 2007).
- C. In the event that the human remains encountered are likely to be of Native American origin, whether prehistoric or historic, MCINCR-MCBQ shall immediately notify any federally-recognized Indian tribes and Indian tribes recognized by the Commonwealth of Virginia (hereinafter "Virginia Indian tribes") with interest in

Memorandum of Agreement Regarding Wargaming Center Marine Corps Base Quantico, Virginia Page  ${\bf 6}$  of  ${\bf 10}$ 

the area. MCINCR-MCBQ shall determine the treatment of Native American human remains and associated funerary objects in consultation with the appropriate federally-recognized and Virginia Indian tribes. MCINCR-MCBQ shall make all reasonable efforts to ensure that the general public is excluded from viewing any Native American gravesites and associated funerary objects. The SHPO and other Consulting Party to this MOA shall not release any photographs of any Native American gravesites, human remains, or associated funerary objects to the press or to the general public.

- V. Dispute Resolution
  - A. Should any party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, MCINCR-MCBQ shall consult with the objecting party to resolve the objection. If MCINCR-MCBQ determines that such objection cannot be resolved, MCINCR-MCBQ will:
    - 1. Forward all documentation relevant to the dispute, including MCINCR-MCBQ's proposed resolution, to the ACHP. The ACHP shall provide MCINCR-MCBQ with its advice on the resolution of the objection within thirty (30) calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, MCINCR-MCBQ shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and SHPO, and provide them with a copy of this written response. MCINCR-MCBQ will then proceed according to its final decision.
    - 2. If the ACHP does not provide its advice regarding the dispute within the thirty- (30)-calendar day time period, MCINCR-MCBQ may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, MCINCR-MCBQ shall prepare a written response that takes into account any timely comments regarding the dispute from the SHPO, and provide them and the ACHP with a copy of such written response.
  - B. MCINCR-MCBQ's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remains unchanged.
  - C. If MCINCR-MCBQ receives a written objection from the public, MCINCR-MCBQ shall forward the objection and MCINCR-MCBQ's proposed resolution to the SHPO and Consulting Party. The SHPO and Consulting Party may provide written comments about the objection and proposed resolution within 14 days of receipt. After the close of the comment period, and within 30 days of receipt of the objection, MCINCR-MCBQ shall prepare a written response to the objector that takes into account the objection and any comments received from the SHPO and Consulting Party. MCINCR-MCBQ may then proceed according to its final decision.

Memorandum of Agreement Regarding Wargaming Center Marine Corps Base Quantico, Virginia Page **7** of **10** 

#### VI. Amendments

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all signatories is filed with the ACHP.

#### VII. Termination

- A. If either signatory to this MOA determines that its terms are not or cannot be carried out, that party shall immediately consult the other signatory to attempt to develop an amendment per Stipulation VI, above. If within thirty (30) calendar days (or another time period agreed to by both signatories) an amendment cannot be reached, either signatory may terminate the MOA upon written notification to the other signatory.
- B. Once the MOA is terminated, and prior to work continuing on the Undertaking, MCINCR-MCBQ must either (a) execute a MOA pursuant to 36 CFR § 800.6; or (b) request, take into account, and respond to, the comments of the ACHP under 36 CFR § 800.7. MCINCR-MCBQ shall notify the SHPO and other Consulting Party as to the course of action it will pursue.

#### VIII. Anti-Deficiency Act

The Anti-Deficiency Act, 31 USC § 1341, prohibits federal agencies from incurring an obligation of funds in advance of or in excess of available appropriations. MCINCR-MCBQ will make reasonable and good faith efforts to secure the necessary funds to implement this MOA in its entirety. If compliance with the Anti-Deficiency Act alters or impairs MCINCR-MCBQ's ability to implement the stipulations of this MOA, MCINCR-MCBQ shall consult in accordance with the amendment and terminations procedures found at Stipulations VI and VII of this MOA.

#### IX. Duration

This MOA will become effective upon the last date of signature and will remain in force for five (5) years unless extended by the signatories in accordance with Stipulation VI. If the terms of this MOA are not implemented prior to its expiration, and if MCINCR-MCBQ chooses to continue with the Undertaking, MCINCR-MCBQ will re-initiate consultation in accordance with the requirements of 36 CFR § 800. Execution of this MOA by MCINCR-MCBQ and SHPO and implementation of its terms evidence that MCINCR-MCBQ has taken into account the effects of this Undertaking on historic properties and afforded the ACHP an opportunity to comment. Memorandum of Agreement Regarding Wargaming Center Marine Corps Base Quantico, Virginia Page  ${\bf 8}$  of  ${\bf 10}$ 

#### MEMORANDUM OF AGREEMENT

BETWEEN THE UNITED STATES MARINE CORPS MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION-MARINE CORPS BASE QUANTICO AND THE VIRGINIA STATE HISTORIC PRESERVATION OFFICER REGARDING THE WARGAMING CENTER AT MARINE CORPS BASE QUANTICO, VIRGINIA

The undersigned Signatory Parties verify that they have full authority to represent and bind their respective agency for the purposes of entering into this MOA.

UNITED STATES MARINE CORPS

By: \_\_\_\_\_

Date: \_\_\_

COLONEL, U.S. MARINE CORPS Commander, Marine Corps Installations National Capital Region- Marine Corps Base Quantico Memorandum of Agreement Regarding Wargaming Center Marine Corps Base Quantico, Virginia Page  ${\bf 9}$  of  ${\bf 10}$ 

#### MEMORANDUM OF AGREEMENT

BETWEEN THE UNITED STATES MARINE CORPS MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION-MARINE CORPS BASE QUANTICO AND THE VIRGINIA STATE HISTORIC PRESERVATION OFFICER REGARDING THE WARGAMING CENTER AT MARINE CORPS BASE QUANTICO, VIRGINIA

The undersigned Signatory Parties verify that they have full authority to represent and bind their respective agency for the purposes of entering into this MOA.

VIRGINIA STATE HISTORIC PRESERVATION OFFICER

By: \_\_\_\_

Date:

Director, Department of Historic Resources

Memorandum of Agreement Regarding Wargaming Center Marine Corps Base Quantico, Virginia Page **10** of **10** 

#### MEMORANDUM OF AGREEMENT

BETWEEN THE UNITED STATES MARINE CORPS MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION-MARINE CORPS BASE QUANTICO AND THE VIRGINIA STATE HISTORIC PRESERVATION OFFICER REGARDING THE WARGAMING CENTER AT MARINE CORPS BASE QUANTICO, VIRGINIA

Concurring Party:

STAFFORD COUNTY

By:

Date:

KATHY BAKER Assistant Director of Planning and Zoning
Appendix G Osprey Nest Map



**Osprey Nest Check Activity-2020** 

Appendix H AICUZ Documentation/APZ Maps







Appendix I Construction Waste Management Report

# Construction Waste Management Report Quantico Marine Corps Base

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

# RETURN THIS FORM TO <u>marilisa.porter@usmc.mil</u> FAX (703) 784-6335 <u>REPORTS MUST BE TURNED IN MONTHLY</u> ANNUAL TURNINS ARE CASE BY CASE ONLY

Comments:

Waste Stream	Disposal (Tons)	Disposal Cost	Recycled (Tons)	Recycled Cost	Recycled Revenues
Landfill		\$		\$	\$
Incinerated		\$		\$	\$
Composted		\$		\$	\$

For each landfill and/or incinerator, provide name, city, county, state and tipping fee. If there are multiple landfills, please annotate below on the additional lines provided.

Name	City, County, State	Tipping Fee
Name	City, County, State	Tipping Fee
Name	City, County, State	Tipping Fee
Name	City, County, State	Tipping Fee

## **Recycling Breakdown (Qty should add up to recycled tons)**

Category	Tons
Food	
Glass	
Metals (Brass .50 cal and below)	
Metals (excluding brass)	
Other (non-food, describe in comments)	
Paper and Paperboard	
Cardboard	

Form created 11/2008, revised 8/18 by Marilisa Porter, Solid Waste Manager

Plastic	
Wood	
Yard/Green Waste	

#### Comments: \_\_\_\_\_

## 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.

Appendix J Acronyms The following list of abbreviations and acronyms are commonly used in Navy and USMC environmental planning documents and are presented to ensure they are applied in a consistent manner throughout all Navy and USMC environmental planning documents.

 $\mu$ Pa – micropascal µg/L – micrograms per liter AAQS - Ambient Air Quality Standard AGL - above ground level AICUZ - Air Installation Compatible Use Zone AO - Area of Operations AOR - Area of Responsibility APE - Area of Potential Effect APZ - Accident Potential Zone ARPA - Archaeological Resources Protection Act ATC - air traffic control **ATFP** - Antiterrorism Force Protection **BA - Biological Assessment** BASH - bird/aircraft strike hazard **BE** - Biological Evaluation BEQ - bachelor enlisted quarters BMP - best management practice **BO** - Biological Opinion BOQ - bachelor officers quarters CAA - Clean Air Act **CEQ** - Council on Environmental Quality CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act CFR - Code of Federal Regulations CH<sub>4</sub> - Methane **CNIC - Commander Navy Installations Command** CO - carbon monoxide CO2 - carbon dioxide CWA - Clean Water Act CZMA - Coastal Zone Management Act dB - decibel dBA - A-weighted sound level dBC - C-weighted sound level dBP - peak decibel DEA – Drug Enforcement Agency **DEIS - Draft Environmental Impact Statement** DNL - day-night average sound level DoD - United States Department of Defense DON - United States Department of the Navy DZ - drop zone EA - Environmental Assessment EAP - Encroachment Action Plan EFH - Essential Fish Habitat

**EIS - Environmental Impact Statement** EO - Executive Order EOD - explosive ordnance disposal ESA - Endangered Species Act EPCRA - Emergency Planning and Community Right-to-Know Act ESQD - explosive safety quantity distance FAA - Federal Aviation Administration FBI – Federal Bureau of Investigation FEIS - Final Environmental Impact Statement FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act FIRM – Flood Insurance FONSI - Finding of No Significant Impact FY - fiscal year GHG - greenhouse gas GIS - geographic information system HAP - hazardous air pollutant HAPC - habitat areas of particular concern HE - high explosive ICRMP - Integrated Cultural Resources Management Plan INRMP - Integrated Natural Resources Management Plan **IRP** - Installation Restoration Program kHz-kilohertz LANDNAV – Land Navigation LBP - lead based paint MCAF - Marine Corps Air Facility MCB - Marine Corps Base MCCS – Marine Corps Community Services MCO - Marine Corps Order MEC - Munitions and Explosives of Concern MEM - military expended material mg/kg – milligrams per killigrams MILCON - military construction MLLW - mean lower low water MMRP - Military Munitions Response Program MOA - Military Operations Area MSFCMA - Magnuson-Stevens Fishery Conservation and Management Act MSL - mean sea level MTR - military training route NAAQS - National Ambient Air Quality Standards NAGPRA - Native American Graves Protection and Reparation Act NAVFAC - Naval Facilities Engineering Command NEPA - National Environmental Policy Act NEW - net explosive weight NHPA - National Historic Preservation Act NO2 - nitrogen dioxide NOA - notice of availability

NOI - Notice of Intent NPDES - National Pollutant Discharge Elimination System NPL – National Priority List NPS - National Park Service NRHP - National Register of Historic Places OPNAV - Office of the Chief of Naval Operations **OPNAVINST** - Office of the Chief of Naval Operations Instruction PAH - polynuclear aromatic hydrocarbon PCB - polychlorinated biphenyl  $PM_{10}$  - particulate matter less than or equal to 10 microns in diameter PM<sub>2.5</sub> - particulate matter less than or equal to 2.5 microns in diameter Ppb - parts per billion Ppm - parts per million Ppt - parts per thousand PPV - public/private venture PTS - permanent threshold shift RAICUZ - Range Air Installation Compatible Use Zone RCMP - Range Complex Management Plan RCRA - Resource Conservation and Recovery Act REVA - Range Environmental Vulnerability Assessment **ROD** - Record of Decision RONA - Record of Non-Applicability SAV - submerged aquatic vegetation SEL - sound exposure level SHPO - State Historic Preservation Officer SIP - State Implementation Plan SO2 - sulfur dioxide SPL - sound pressure level TSCA - Toxic Substances Control Act TTS - temporary threshold shift U.S.C. - United States Code UAV - unmanned aerial vehicle USACE - U.S. Army Corps of Engineers USEPA - U.S. Environmental Protection Agency USFWS - U.S. Fish and Wildlife Service USGS - U.S. Geological Survey USMC - U.S. Marine Corps UXO - unexploded ordnance VDEQ – Virginia Department of Environmental Quality

# APPENDIX K Laws and Regulations

National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] sections 4321-4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment

Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA [40 Code of Federal Regulations (C.F.R.) parts 1500-1508 (2020)]

Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA [40 Code of Federal Regulations (C.F.R.) parts 1500-1508 (1978)]

Clean Air Act (42 U.S.C. section 7401 et seq.)

Clean Water Act (33 U.S.C. section 1251 et seq.)

Department of Defense Initiative (DODI) 4715.14

National Historic Preservation Act (54 U.S.C. section 306108 et seq.)

Endangered Species Act (16 U.S.C. section 1531 et seq.)

Migratory Bird Treaty Act (16 U.S.C. sections 703-712)

Bald and Golden Eagle Protection Act (16 U.S.C. section 668-668d)

Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)

Toxic Substances Control Act (15 U.S.C. sections 2601-2629)

Executive Order (EO) 11988, Floodplain Management

EO 11990, Protection of Wetlands

EO 12088, Federal Compliance with Pollution Control Standards

EO 13693, Planning for Federal Sustainability in the Next Decade