DRAFT SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT: PROPOSED CONSTRUCTION AND OPERATION OF THE PUERTO RICO NATIONAL CEMETERY REPLACEMENT MOROVIS, PUERTO RICO

U.S. Department of Veterans Affairs
425 I Street, NW
Washington, DC 20001

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EXECUTIVE SUMMARY AND CONCLUSIONS

In this National Environmental Policy Act (NEPA) Site-Specific Environmental Assessment (SEA), the U.S. Department of Veterans Affairs (VA), National Cemetery Administration (NCA) identifies, analyzes, and documents the potential physical, environmental, cultural, and socioeconomic impacts associated with the Proposed Action to construct and operate the initial phase ("Phase 1") of the Puerto Rico National Cemetery Replacement (National Cemetery), to be located at PR-137, Km 11.2 in the municipality of Morovis, Puerto Rico.

This SEA is tiered from the August 2011 Final Programmatic Environmental Assessment (PEA), which analyzed environmental impacts associated with purchasing the approximately 247.5-acre parcel for the intended purpose of developing it as a National Cemetery, and concluded with a Finding of No Significant Impact (FONSI). Subsequently, the VA purchased the parcel in March 2013 and began studies and coordination with regulatory agencies to identify sensitive environmental areas for avoidance within the parcel. Based on this information, approximately 124 acres of the 247.5-acre parcel were deemed suitable for development, while the remaining 123 acres would become a preservation area to remain undeveloped in perpetuity. The VA incorporated these constraints into the master planning process, ultimately arriving at a final detailed design plan for the Phase 1 cemetery ("MP5") within an approximately 50-acre area within the 124-acre suitable development area. During the master planning process, the VA also developed conceptual plans for up to nine additional potential future development phases of the National Cemetery over the next 100 years within the remaining 124-acre suitable development area. Although the VA's Proposed Action is to construct and operate only the Phase 1 cemetery (and not the potential future development phases), the Proposed Action incorporates off-site compensation commitments that account for potential future development at the entire 124-acre area, as required by Puerto Rico Department of Natural and Environmental Resources (PRDNER) under the Karst Special Planning Area Regulation of 2014 (PRAPEC) Special Determination Authorization issued to the VA on June 1, 2016.

The Phase 1 cemetery would provide for approximately 10 years of burial capacity, including casket, columbarium, and in-ground cremation sites; two (2) committal shelters; and supporting infrastructure including a main entrance and signage, interior roadways and parking areas, irrigation, landscaping, visitor amenities, a Maintenance/Honor Guard Building, and an Administration-Public Information Center building. The physical infrastructure (e.g. entrance, roads, buildings) developed as part of the Phase 1 cemetery would support potential future cemetery development phases elsewhere within the 124-acre area. The Phase 1 cemetery construction is anticipated to begin in the fall of 2017 and end in the summer of 2020. However, the need for potential future development phases within the remaining 124-acre area would be assessed by the VA approximately every 10 years, and separate NEPA Environmental Assessments would be performed in advance of implementing any phase.

The VA has designated the Phase 1 cemetery MP5, including PRDNER-required off-site compensation commitments, as the Proposed Action for analysis in this SEA. A No Action Alternative is also analyzed to assess baseline conditions and potential impacts that would result from not implementing the Proposed Action.

Accordingly, the ***purpose*** of the Proposed Action is to enable the NCA to continue to provide eligible Veterans and their families with a National Cemetery of sufficient size and capacity to continue to serve the projected burial needs of Veterans in Puerto Rico for at least the next 10 years. The current Puerto Rico National Cemetery in the municipality of Bayamon is the only National Cemetery outside of the United States mainland, providing burial spaces for the past 65 years, but is anticipated to reach full in-ground interment capacity by approximately 2022 and full columbarium capacity by 2030. Additionally, the Puerto Rico National Cemetery in Bayamon does not have any additional areas where potential future expansions could occur.

The Proposed Action is ***needed*** to meet the NCA's goal of providing eligible Veterans with reasonable access to VA burial options.

Therefore, the two alternatives analyzed in this SEA are:

- **The Proposed Action**: at the 247.5-acre parcel in Morovis, construct and operate Phase 1 of the Puerto Rico National Cemetery Replacement on an approximately 50-acre area within the 124-acre suitable development area, and preserve the remaining 123-acre area from development in perpetuity; and implement PRDNER-required off-site compensation commitments based on potential future development of the entire 124-acre suitable development area.

- **The No Action Alternative**: do not construct and operate Phase 1 of the Puerto Rico National Cemetery Replacement (i.e. do not implement the Proposed Action). Under the No Action Alternative, the current Puerto Rico National Cemetery in Bayamon, which is projected to reach full in-ground interment capacity by 2022 and full columbarium capacity by 2030, and which has no available areas for potential future expansion, would remain the only National Cemetery available to serve eligible Veterans and their families in Puerto Rico, or until such time that another suitable replacement site in Puerto Rico is identified. Under the No Action Alternative, the purpose and need defined above would not be met.

The following table summarizes the potential environmental impacts of the Proposed Action and No Action Alternative.

Resource / Issue	Proposed Action	No Action Alternative
Meets Purpose of and Need for Action	Yes	No
Aesthetics	Construction: Short-term, less-than-significant adverse impact from presence of heavy equipment, unfinished work during construction, and dust generation. Operation: Long-term, less-than-significant beneficial impact from creating a National Shrine with park-like landscape and architecture. Management Measures: maintain and/or create visual buffer between construction site and nearby residents; use regionally-appropriate architectural design for buildings.	The beneficial impact associated with creating a park-like setting would not occur.
Air Quality	Construction: Short-term, less-than-significant adverse impact from construction vehicles/equipment and particulate emissions during construction; projected emission levels are below the *de minimis* threshold level. Operation: Negligible adverse impact. Management Measures: Utilize BMPs to ensure emissions comply with all air quality requirements and regulations. Maintain equipment in good condition.	Long-term, less-than-significant adverse impact due to relatively greater emissions generated by families and visitors traveling by air and car from Puerto Rico to an available National Cemetery on US mainland.

Resource / Issue	Proposed Action	No Action Alternative
Cultural Resources	No impact on cultural resources during construction or operation due to avoidance, establishment of buffer zones, and creation of 123-acre preservation area surrounding these resources. Avoidance and Management Measures: Implement avoidance design, maintain buffer zones and preservation area. Continue Section 106 consultation with PRSHPO.	Less-than-significant adverse because buffer zones and preservation area would not be established; these resources could be degraded by vandalism over time.
Geology, Topography, and Soils	Geology: Construction – Less-than-significant adverse impacts to zanjones and suspected karstic depressions. Operation – Negligible adverse impact. Topography: Construction – Moderate but less-than-significant adverse impact due to cut and fill, changing existing topography. Operation – Negligible adverse impact. Soils: Construction – Moderate but less-than-significant adverse impact due to compaction, erosion, impervious, spills, importing fill; negligible loss of prime farmland. Operation – Negligible adverse impact. Avoidance and Management Measures: Avoid regulated features to maximum extent practicable and maintain buffer zones elsewhere, establish 123-acre preservation area. Comply with EISA 438. Implement PRDNER off-site compensation commitments required under PRAPEC. Minimize soil impacts through BMPs in required NPDES, SWPPP, CES plans and permits.	None.
Hydrology and Water Quality	Surface Water: Construction – No adverse impact. Design avoids surface water, establishes 15-meter buffer between top of bank and development are. Bridge footings outside buffer. Operation – No adverse impact. Groundwater: Construction – Negligible adverse impact due to increased impervious areas. Operation – Negligible adverse impact due to increased impervious area and use of on-site groundwater for backup irrigation water. Avoidance and Management Measures: Establish 123-acre preservation area. Avoid surface waters and maintain buffer zones. Minimize soil erosion and sedimentation through BMPs in NPDES/SWPPP/CES plans. Maintain pre-development hydrologic conditions per EISA 438. Design bridge crossing to avoid regulated creek boundaries and outside 100-year floodplain. Irrigate using retention pond water and onsite wells as backup (do not use potable water supply for irrigation). All water to infiltrate back into ground. Follow NCA burial processes. Maintain spill kits and operate vehicles in good condition.	None.

Resource / Issue	Proposed Action	No Action Alternative
Wildlife and Habitat	Construction - Long-term, less-than-significant adverse impact from loss of habitat in Karst area, though no listed flora. Potential impact to Puerto Rican Boa. Operation – Negligible adverse impact. Avoidance and Management Measures: Avoid and monitor for Puerto Rico Boa during construction. Minimize habitat impacts though construction BMPs. Establish 123-acre on-site preservation area. Implement PRDNER off-site compensation commitments required under PRAPEC for habitat loss in Karst area.	None.
Noise	Construction: Short-term, less-than-significant adverse impacts from vehicle engine noise on nearby residential receptors. Operation: Long-term, less-than-significant adverse impact during operation from limited M-16 rifle salutes during interment ceremonies and grounds maintenance equipment. Management Measures: Construct during daytime hours. Limit salutes to memorial areas during daytime hours.	None.
Land Use	Construction and Operation: Short- and long-term, negligible adverse impact on land use through conversion from pasture and natural area to development as National Cemetery. Management Measures: Design according to NCA requirements, limit Phase 1 cemetery within 50-acre area, establish and maintain buffer near residential abutters. Implement PRDNER off-site compensation commitments required under PRAPEC.	None.
Floodplains, Wetlands, and Coastal Zone Management	Construction: No adverse impact on wetlands due to avoidance and implement BMPs to minimize and control potential sedimentation of run-off. Operation: No impacts to wetland. Floodplain coastal zone management: no impacts, site is outside floodplain and CZM. Avoidance and Management Measures: Implement MP5 design that entirely avoids wetlands. Establish and maintain buffer zone around wetlands.	None.
Socioeconomics	Construction: Short-term, moderate but less-than-significant beneficial impact from localized increase in spending on construction materials, construction employment. Operation: Long-term, moderate but less-than-significant beneficial impact from visitors spending money at local businesses during operation, and limited employment opportunity during operation.	Short- and long-term less-than-significant adverse impact, as there would be no increase in construction and visitor spending or employment opportunities associated with the Proposed Action.

Resource / Issue	Proposed Action	No Action Alternative
Community Services	Beneficial impact by providing burial services for Veterans and their families. No impact on other community services.	Long-term, significantly adverse impact because of unavailable future burial benefits at a National Cemetery within Puerto Rico following future closure of Bayamon.
Solid and Hazardous Materials	Construction: Short- and long-term, less-than-significant adverse impact from increase in solid waste generated during construction and potential for fuel/fluid releases from vehicles/equipment during construction. Operation: Negligible adverse impact from routine maintenance activities. Management Measures: Minimize potential for, or impact from, releases through BMPs, SWPPP implementation, spill-kits, routine vehicle maintenance.	LBP and ACM present in existing structures would remain unabated and be subject to further deterioration and potential release.
Transportation and Parking	Construction: Short-term, less-than-significant adverse impact from construction vehicles on area roadways. Operation: Negligible adverse impact, primarily from increase in staff/visitor vehicles on local roadways, which are capable of handling increased volume. Management Measures: Inform community about construction traffic frequency, routes, and implement temporary safety/traffic control measures as needed. Construct entrance/exit alignments according to approved PRHTA and FHWA designs.	None.
Utilities	Construction: Short-term, less-than-significant adverse impacts from potential temporary service outages to the community during rerouting and extending utilities at the site. Operation: Negligible adverse impact due to increase in use of existing utilities. Management Measures: Continue coordination with PRASA (water, sewerage), PREPA (electric), and JRTPR (telecom). Avoid using public potable water utility for irrigation water during operation.	None.
Environmental Justice	No significant adverse or beneficial impact during construction or operation.	None.
Potential for Generating Substantial Controversy	No significant adverse impact during construction or operation.	Long-term, significant adverse impact because public is aware Bayamon reaching capacity, and community is anticipating construction and operation of Puerto Rico National Cemetery Replacement in Morovis.

As summarized in the above chart and described in greater detail in the following chapters, the Proposed Action incorporates numerous avoidance and management measures, creation of a 123-acre preservation area within the 247.5-acre site, as well as off-site compensation commitments required by PRDNER under the PRAPEC regulation. And while the Proposed Action represents only the construction and operation of the Phase 1 cemetery within a 50-acre portion of the 124-acre suitable development area, the off-site compensation commitments account for potential future development phases within the remainder of the 124-acre developable area over the next century. As previously noted, the need for potential future development phases within the remaining 124-acre area would be assessed by the VA approximately every 10 years, and separate NEPA Environmental Assessments would be performed in advance of implementing any development phase.

Therefore, no individual or cumulative significant adverse impacts to any of the above resources are anticipated from implementing the Proposed Action.

Public and regulatory comments on this Draft SEA will be considered and incorporated in the Final SEA. Should the VA receive any substantive comments opposed to the Proposed Action, the Draft SEA findings will be reevaluated accordingly.

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ABSTRACT

LEAD AGENCY: Department of Veterans Affairs (VA), National Cemetery Administration (NCA)

COOPERATING AGENCIES: None

TITLE OF PROPOSED ACTION: Proposed Construction and Operation of the Puerto Rico National Cemetery Replacement – Morovis, Puerto Rico

AFFECTED JURISDICTION: Puerto Rico

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PROPONENT: NCA

DOCUMENT DESIGNATION: Draft Site-Specific Environmental Assessment (SEA)

The existing Puerto Rico National Cemetery located in Bayamon is anticipated to reach full burial capacity in 2022. In response, the U.S. Department of Veterans Affairs (VA), National Cemetery Administration (NCA) identified and purchased an approximately 247.5-acre parcel at State Road PR-137, Km 11.2 in the municipality of Morovis, Puerto Rico, for the Proposed Action of developing it as the new Puerto Rico National Cemetery Replacement. Based on the VA's master planning design process, sensitive resource investigations, and regulatory coordination, the VA determined that a total of approximately 124 acres was suitable for development, while the remaining 123 acres within the 247.5-acre parcel would be preserved in perpetuity. Accordingly, the VA prepared this National Environmental Policy Act (NEPA) Site-Specific Environmental Assessment (SEA) to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic impacts associated with implementing the Proposed Action, which specifically entails constructing and operating the first phase ("Phase 1") of the National Cemetery over approximately 50 acres of the 124-acre suitable development area, establishing a 123-acre preservation area at the remainder of the site, and implementing PRDNER-required off-site compensation commitments based on potential future development of the entire 124-acre suitable development area. The Phase 1 and would provide for 10 years of burial operations and additional operational infrastructure to support potential future cemetery expansion phases. The need for future cemetery expansions will be evaluated every 10 years, and would be preceded by separate NEPA analyses prior to implementing any expansion phase.

The purpose of the Proposed Action is to enable the NCA to continue to provide eligible Veterans and their families with a National Cemetery of sufficient size and capacity to continue to serve the projected burial needs of Veterans in Puerto Rico for at least the next 10 years. The Proposed Action is needed to meet the NCA's goal of providing eligible Veterans with reasonable access to VA burial options.

Under the No Action Alternative, the Proposed Action would not be implemented. Eligible Veterans and their families would be underserved in Puerto Rico. The No Action Alternative would not meet the purpose and need identified by the VA.

Based on the SEA, the Proposed Action would not cause a significantly adverse impact on any of the environmental resources analyzed, including: aesthetics; air quality; cultural resources; geology, topography, and soils; hydrology and water quality; wildlife and habitat; noise; land use; floodplains, wetlands, and coastal zone management; socioeconomics; community services; solid and hazardous materials; transportation and parking; utilities; or environmental justice. In contrast, the No Action Alternative would cause a long-term significantly adverse impact to community services (lack of a new National Cemetery in Puerto Rico) and generate substantial controversy, as the public is anticipating that the VA will construct and operate the Puerto Rico National Cemetery Replacement in Morovis within the next 1-3 years.

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos Containing Material
AIRFA	American Indian Religious Freedom Act
AMSL	Above Mean Sea Level
APE	Area of Potential Effect
APE-RC	Área de Planificación Especial Restringida del Carso (Restricted Karst Special Planning Area)
ARPA	Archaeological Resources Protection Act
ASEL	A-weighted Sound Exposure Level
BGS	Below Ground Surface
BMP	Best Management Practice
CES	Sediment and Erosion Control Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Consolidated General Permit
CO	Carbon monoxide
CSA	CSA Architects & Engineers, LLP
CWA	Clean Water Act
dBA	A-weighted decibel
E&S	Erosion and Sedimentation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act (EISA Section 438)
EO	Executive Order
ETO	Early Turn-Over Area
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FPPA	Farmland Policy Protection Act
FONSI	Finding of No Significant Impact
FWS	U.S. Fish and Wildlife Service
GI/LID	Green Infrastructure/Low-Impact Development
GPM	Gallons Per Minute
GSF	Gross Square Feet
HAP	Hazardous Air Pollutant
HVAC	Heating, Ventilation, and Cooling
JD	Jurisdictional Determination
JRTPR	Telecommunications Regulatory Board of Puerto Rico
LBP	Lead Based Paint
LEED	Leadership in Energy and Environmental Design
LMAX	A-weighted maximum sound level
LOS	Level of Service
M^3	Cubic Meter
MGD	Million Gallons per Day
MP5	Master Plan 5
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NCA	National Cemetery Administration
NEPA	National Environmental Policy Act
NOA	Notice of Availability

NOI	Notice of Intent
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O_3	Ozone
OCFM	VA Office of Construction and Facilities Management
OPA	VA Office of Public Affairs
Pb	Lead
PEA	Programmatic Environmental Assessment
PM	Particulate Matter; $PM_{2.5}$ and PM_{10} have average diameters less than 2.5 and 10 micrometers, respectively
PPC	Pre-Placed Crypts
PRAPEC	Karst Special Planning Area Regulation of 2014
PRASA	Puerto Rico Aqueducts and Sewers Authority
PRDNER	Puerto Rico Department of Natural and Environmental Resources
PREPA	Puerto Rico Electric Power Authority
PREQB	Puerto Rico Environmental Quality Board
PRHTA	Puerto Rico Department of Highways and Transportation Authority
PROGP	Puerto Rico Management and Permit Office
PRPB	Puerto Rico Planning Board
PRSHPO	State Historic Preservation Office
PRTC	Puerto Rico Telephone Company
RPW	Relatively Permanent Waters
SCAQMD	California South Coast Air Quality Management District
SEA	Site-Specific Environmental Assessment
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
TNW	Traditional Navigable Waters of the U.S.
USACE	U.S. Army Corps of Engineers
USAF	US Air Force
USDA	US Department of Agriculture
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VA	U.S. Department of Veterans Affairs
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The U.S. Department of Veterans Affairs (VA), National Cemetery Administration (NCA) honors Veterans and their families with final resting places in national shrines and with lasting tributes that commemorate their service and sacrifice to the nation. NCA maintains approximately 3.3 million gravesites at 134 National Cemeteries, one National Veterans' burial ground, and 33 Soldiers' Lots and Monument sites in 40 states and Puerto Rico (VA, 2014a). VA's Office of Construction and Facility Management's (OCFM) directive is to advance VA's mission in support of the nation's Veterans by planning, designing, constructing, and acquiring major facilities; and setting design and construction standards.

As part of this mission, NCA determined that the existing Puerto Rico National Cemetery located in Bayamon is anticipated to reach full in-ground burial capacity in 2022 and columbarium in 2030, and that a new National Cemetery Replacement would be needed to provide additional burial capacity to benefit Veterans and their families in Puerto Rico.

To address this need, NCA identified an approximately 247.5-acre parcel located at State Road PR-137, Km 11.2, in Morovis, Puerto Rico. On August 22, 2011, NCA issued the *Final Programmatic Environmental Assessment (PEA) of the Proposed Construction and Operation of the Morovis, Puerto Rico National Cemetery, Morovis, Puerto Rico* (VA, 2011), which documented the National Environmental Protection Act (NEPA) analysis of the potential impacts associated with selecting and acquiring this parcel for the purpose of constructing and operating the National Cemetery Replacement. Based on the PEA findings, the VA issued a Finding of No Significant Impact (FONSI), which stated that no significant adverse impacts were anticipated with acquiring the parcel and developing it as long as management and avoidance measures were incorporated into a subsequent site-specific design for the construction and operation of the National Cemetery. The FONSI also documented VA's commitment to complete a Site-Specific Environmental Analysis (SEA) of the eventual site-specific design for the National Cemetery.

In March 2013, the VA purchased the parcel for approximately $7.6 million (VA OPA, 2013). Figure 1 depicts the general location and boundary of the parcel. The VA then began the site-specific design process and conducted several site-specific investigations for wetlands, regulated flora and fauna, geological features, and cultural resources, and initiated or continued consultations with Federal, Commonwealth, and local regulatory agencies and utility providers. Through this process, the VA determined that approximately 124 acres within the 247.5-acre parcel was suitable for development, and approximately 123 acres remaining would be preserved in perpetuity. Based on this constraint, the VA eventually developed the final master plan for the Phase 1 cemetery (Master Plan 5 Project Narrative, October 13, 2016; herein "MP5"), as well as recommended layouts for potential future cemetery expansion areas.

Based on this final MP5 for the Phase 1 cemetery, the VA has prepared this SEA to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic impacts associated with constructing and operating this Proposed Action. Generally, the Phase 1 cemetery would cover an approximately 50-acre area, and provide for approximately 10 years of burial capacity including casket, columbarium, and in-ground cremation sites, as well as committal shelters, parking, irrigation, landscaping, visitor amenities, signage, and additional infrastructure to support potential future cemetery expansion phases. The VA would evaluate the need for future expansion phases in 10-year cycles and complete separate NEPA analyses in advance of implementing any future development phase.

The two (2) alternatives considered in this SEA include:

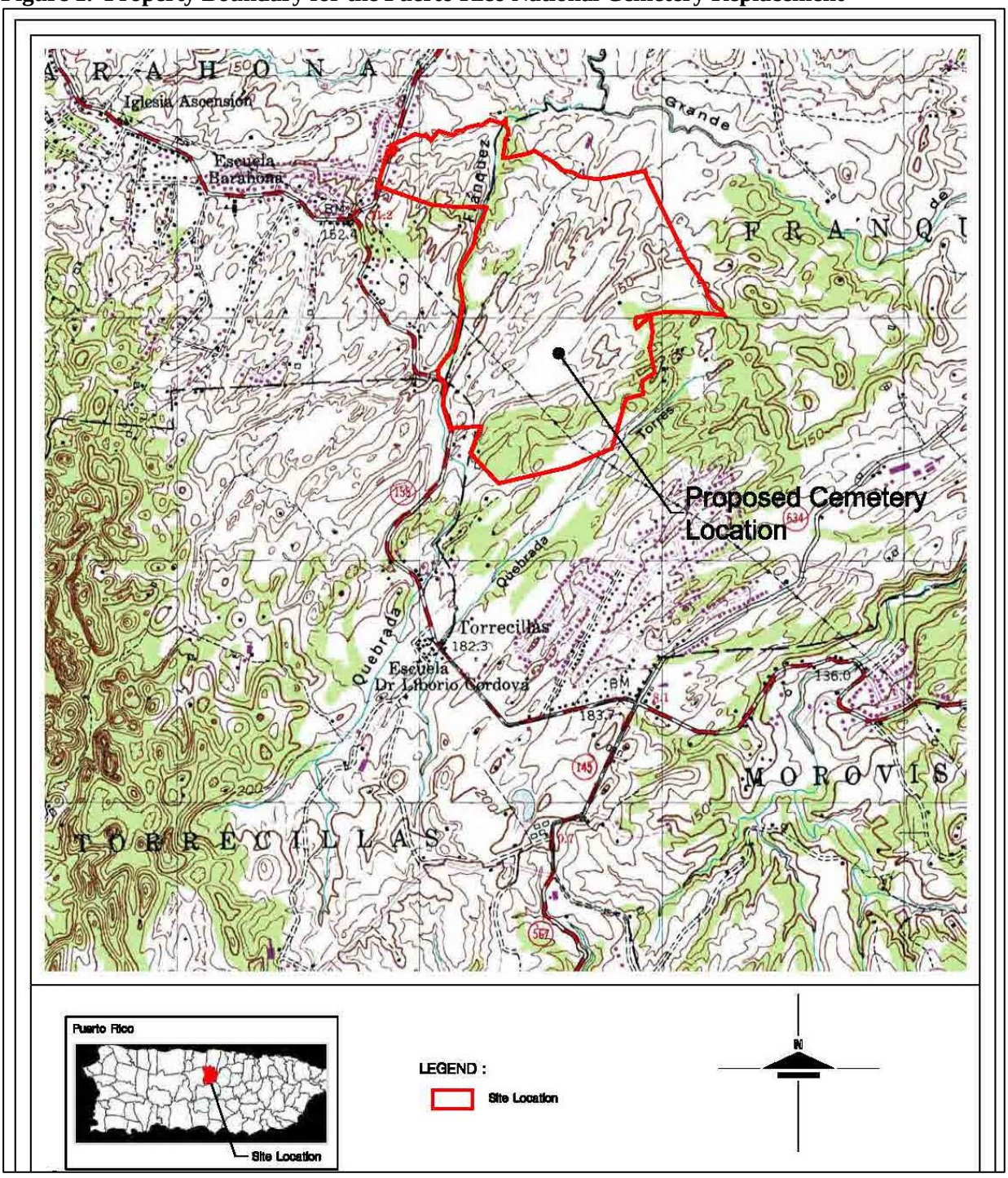
1. **Proposed Action**: to construct and operate Phase 1 of the Puerto Rico National Cemetery Replacement within an approximately 50-acre area at the 247.5-acre site. The Proposed Action

would provide all facilities and infrastructure necessary to maintain and operate the cemetery and sufficient interment capacity for 10 years.

2. **No Action Alternative**: do not construct and operate Phase 1 of the Puerto Rico National Cemetery Replacement at this parcel. Burial opportunities would be limited to the existing Puerto Rico National Cemetery, located in Bayamon, which is anticipated to be closed to new casketed interments in 2022. Future Veterans and their families would no longer be able to receive the earned right to burial in a national shrine in Puerto Rico.

This remainder of this document is structured to present the regulatory basis and decision making process (Chapter 1), provide details of the alternatives (Chapter 2), and describe the affected environment and evaluates the potential environmental consequences (Chapter 3). The remainder of the SEA provides a summary of agency coordination and public involvement (Chapter 4), best management practices, management, and monitoring commitments (Chapter 5), a list of preparers (Chapter 6), references (Chapter 7), and a glossary (Chapter 8).

Figure 1. Property Boundary for the Puerto Rico National Cemetery Replacement



1.1 Regulatory Basis

This SEA is conducted in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code 4321 et seq.), the White House Council on Environmental Quality (CEQ) "Regulations Implementing the Procedural Provisions of NEPA" (40 Code of Federal Regulations [CFR] 1500–1508), VA's NEPA regulations titled "Environmental Effects of the Department of Veterans Affairs Actions" (38 CFR Part 26), and VA's NEPA Interim Guidance for Projects (VA, 2010). These requirements specify that VA must evaluate the potential environmental impacts of VA facilities, operations, and related funding decisions prior to taking action. VA must apply the NEPA review process and use the information to make an informed decision prior to undertaking a proposed action. An EA/SEA provides sufficient evidence and analysis for determining whether an action would cause significant environmental impacts (requiring an EIS) or the agency can issue a FONSI (40 CFR 1508.9). A FONSI is a decision document that briefly presents the reasons why an action would not have a significant effect on the human environment (40 CFR 1508.13). As required by NEPA and the implementing regulations from CEQ and VA, the alternative of taking no action is evaluated, providing a baseline for comparison of potential impacts from the action alternative (i.e. the Proposed Action).

This SEA is "tiered" from the Final PEA (VA, 2011) and analyzes the site-specific potential environmental impacts from implementing the Proposed Action or the No Action Alternative at the parcel and within the Proposed Action's region of influence. This approach is in full compliance with CEQ Regulations that state that NEPA documents should be "analytic rather than encyclopedic" (40 CFR Part 1502.2a) and that scoping should be used to "identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (40 CFR Part 1506.3), narrowing the discussion of these issues in the statement [EA] to a brief presentation of why they would not have a significant effect on the human environment or providing a reference to their coverage elsewhere" (40 CFR Part 1501.7(a)(3)).

Accordingly, VA is using "Incorporation by Reference" per 40 CFR Part 1502.21 and "Tiering" per 40 CFR Part 102.20 to reduce the volume of this SEA, and, where appropriate, relies on information previously developed and analyzed in the Final PEA (VA, 2011) and related studies.

1.2 Purpose and Need for the Proposed Action

The ***purpose*** of the Proposed Action is to create a new Puerto Rico National Cemetery Replacement to enable the NCA to continue to provide eligible Veterans and their families with a National Cemetery of sufficient size and capacity to continue to serve the projected burial needs of Veterans in Puerto Rico for the next 10 years. The existing Puerto Rico National Cemetery, located in Bayamon, is anticipated to reach full in-ground interment capacity in 2022 and full columbarium capacity in 2030 (VA OPA, 2013). Furthermore, the National Cemetery in Bayamon has no adjacent areas of sufficient size where expansions could occur.

The Proposed Action is ***needed*** to meet the NCA's goal of providing eligible Veterans and their families with reasonable access to VA burial options within Puerto Rico.

1.3 Site and Vicinity Background Description

1.3.1 Site Description

The site is located in the Fránquez Ward, a rural area in the northwestern portion of the municipality of Morovis, Puerto Rico. The site is located approximately 1.5 miles northwest of downtown Morovis, Puerto Rico, approximately 17 miles southwest of the current VA National Cemetery in Bayamon, Puerto Rico, and approximately 23 miles southwest of San Juan, Puerto Rico (see Figure 2). The site is located adjacent to the west of PR-137—at mile marker 11.2 km—and adjacent to the east of PR-155.

Based on the earliest available historical aerial photographs, the land use in 1937 was mainly agricultural with the presence of a few residential dwellings. Over time the land use changed from agricultural activity to primarily cattle grazing. Additionally, according to the PEA (VA, 2011), as many as 22 scattered residential structures were built across the site since 1937.

Currently, the site is comprised of a natural landscape with forestlands (hardwood), pasturelands and urbanized areas. One (1) residential structure previously occupied by the former land owner and four (4) outbuildings are present at the site. An existing paved road runs from north to south, dividing the site in two (2) main areas (east and west). Additionally, PREPA power lines traverse the site from north to south, and west to east (see Figure 3).

The site is located in the Karstic Area of Northern Puerto Rico, on a high plateau to the east-northeast of the Río Grande de Manatí (hydrographic watershed of Cibuco River). The site is within the Restricted Karst Special Planning Area (Área de Planificación Especial Restringida del Carso, APE-RC) regulated at a local level by the PRDNER under the Karst Special Planning Area Regulation of 2014 (PRAPEC, by its Spanish acronym), which manages development in karst areas and establishes that habitat compensation of the same or higher ecological value must occur in at least a 1:1 ratio based on the footprint of a proposed action. Compensation commitments are often accomplished through land acquisitions or establishment of conservation easements. The PRAPEC regulation was promulgated on July 4, 2014, which occurred after the VA had already purchased the site on March 5, 2013. However, following discussions with PRDNER, the VA agreed to incorporate the PRAPEC regulation for avoidance, minimization, and off-site compensation commitments into the design not only for the Proposed Action development, but for potential future development as well.

As part of the PRAPEC compliance process, the VA submitted a Special Authorization Request application on January 18, 2014, to request a Special Authorization Determination from PRDNER to allow the VA to develop the site as a National Cemetery, as well as to conduct further site-specific investigations, such as geotechnical and hydrogeological studies, that would help to guide the design as it pertained to fundamental issues like earthwork, stormwater management, and aquifer recharge, among others. The application summarized the VA's findings from a prior geologic survey and geomorphic review, as well as other site-specific studies of sensitive resources (e.g. wetlands, flora and fauna, surface water, cultural resources), and described the VA's anticipated avoidance, management, and off-site compensation measures for the Proposed Action. Based on this application, PRDNER on June 1, 2016 issued a Special Authorization Determination (Case No. O-NP-AKR01-SJ-00356-19012016), authorizing the VA to continue the corresponding evaluation for the development of the Proposed Action at the site (a copy of the letter is included in Appendix B). The PRDNER authorization also approved the VA's proposed avoidance measures and specified additional compensation measures required for the Proposed Action and potential future development phases at the site. These specific avoidance measures and compensation commitments are outlined in the detailed description of the Proposed Action in the following Section 2.1.1.

1.3.2 Vicinity Description

The area adjacent to the northern boundary of the site is currently occupied by undeveloped land and residences. The area adjacent to the eastern boundary of the site, across PR-137, is occupied by undeveloped land and residences. The area adjacent to the southern boundary of the site is occupied by undeveloped land, with residential neighborhoods farther to the south. The area adjacent to the western boundary of the site is occupied by undeveloped land, with residences along PR-155. The nearest residential areas immediately adjacent to the VA property include Barahona (northwest) and Fránquez (southeast). Additional community facilities in vicinity of the site that can potentially be impacted by the Proposed Action include schools, hospitals, parks, religious facilities, cemeteries, and libraries, including the following:

Schools. The nearest school is the Barahona Elementary School, located at km 4 PR-633, Morovis. This school is located approximately 1,500 feet to the west of the site. The Angel G. Quintero Intermediate School, located at km 4.7 PR-633, is located approximately 2,500 feet west of the site. The Puerto Rico Preparatory School, located at km 52.6 PR-155, is located approximately 2,000 feet south of the site. The Juana G. Aviles School, located at km 2.1 PR-634, is located approximately 1 mile east of the site.

Hospitals. The nearest hospital is the Morovis Community Health Center, located at PR-6617, and is approximately 4 miles southeast of the site.

Parks. The nearest public park is the Barrio Barahona Park, located adjacent to the Barahona Elementary School, approximately 1,500 feet west of the site.

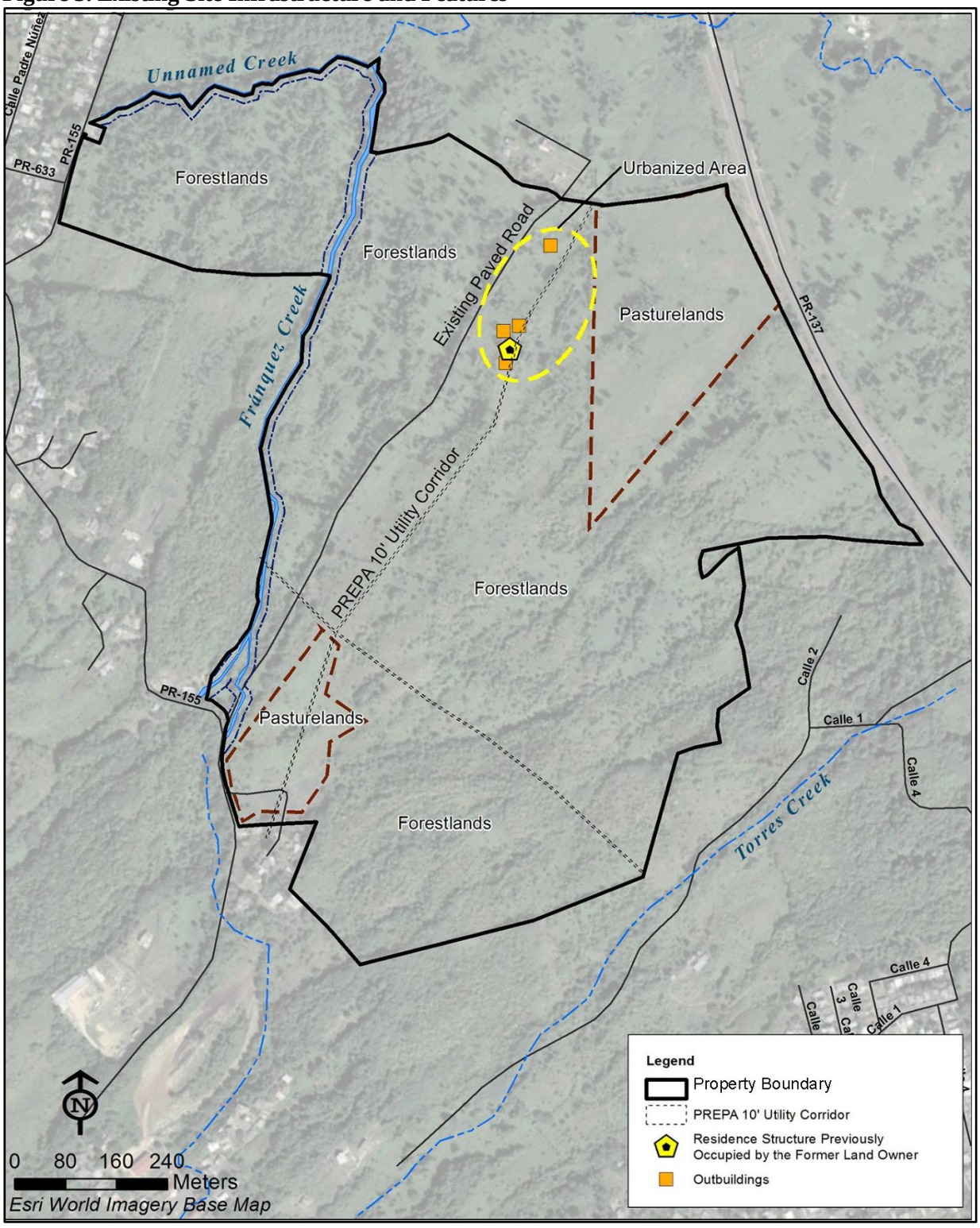
Religious Facilities. The nearest religious facility is the Iglesia Ascension Church, located approximately 0.7 miles west of the site.

Cemeteries. The nearest cemetery is the Cementerio Municipal de Morovis, located approximately 2.5 miles southeast of the site.

Libraries. The nearest library is the Biblioteca Julia M. Cheverez, located approximately 2 miles southeast of the site.

Figure 2. General Site Location and Vicinity Map

Figure 3. Existing Site Infrastructure and Features



1.4 Decision-Making

VA, as a federal agency, is required to incorporate environmental considerations into its decision-making process for the actions it proposes to undertake. This is done in accordance with the regulations and guidance identified in Section 1.0. This SEA:

- informs the public of the possible environmental impacts of the Proposed Action and its considered alternatives, as well as methods to reduce these effects
- provides for public, state, inter-agency, and tribal input into VA's planning and evaluation
- documents the NEPA process
- supports informed decision-making by the federal government

The decision document for this proposed federal undertaking also identifies the actions to which VA would commit to minimize environmental effects, as required under NEPA, its implementing regulations from CEQ (40 CFR 1500–1508) and VA (38 CFR Part 26), and VA's NEPA guidance (VA, 2010).

The decision to be made is whether—having considered the potential physical, environmental, cultural, and socioeconomic effects—VA should implement the Proposed Action including, as appropriate, measures to reduce adverse effects.

2.0 ALTERNATIVES

NEPA, and the regulations of CEQ and VA for implementing NEPA, require all reasonable alternatives to be rigorously explored and objectively evaluated. Accordingly, this chapter summarizes the process used to develop alternatives and provides a description of the subsequently selected Proposed Action and the No Action Alternative, as well as design alternatives considered but ultimately eliminated from further analysis, and the reasons for elimination.

2.1 Development of Alternatives

As previously described, NCA worked with an architecture-engineering consultant during the master planning process to develop design alternatives for the layout of the proposed Puerto Rico National Cemetery Replacement. The alternatives accounted for the NCA's required design elements (presented in the MP5 Project Narrative [VAb, 2016] and not repeated here), as well as the environmental resources that must be avoided and further protected by establishing regulatory-required buffer zones. Based on these requirements and constraints, the VA initially determined that out of the 247.5-acre site, approximately 153.7 acres (62%) were suitable for development (VAb, 2016). However, based on further design refinements and input from regulators, only approximately 124 acres (54%) were deemed suitable for development for the National Cemetery Replacement (VAb, 2016). The remaining 123-acres at the site would be preserved (no development allowed) in perpetuity.

Accordingly, VA examined different options for the best layout of the National Cemetery elements within this 124-acre area, identifying a concept for each alternative that efficiently developed the available area, complemented existing area aesthetics, and minimized adverse impacts to the environment. Through this process, the VA also determined the best design layout for the initial phase ("Phase 1") of the National Cemetery, and ultimately selected the alternative presented in the MP5 for the Phase 1 cemetery as the Proposed Action because it best met the above criteria (VAb, 2016). Earlier alternative designs developed but eliminated from further analysis are described in the following Section 2.3.

Accordingly, this SEA evaluates s the Proposed Action and the No Action Alternative. The elements of the Proposed Action are presented in the following sections. The reader is also referred to the MP5 Project Narrative for additional information regarding non-environmental construction and building material details for the Proposed Action (VAb, 2016).

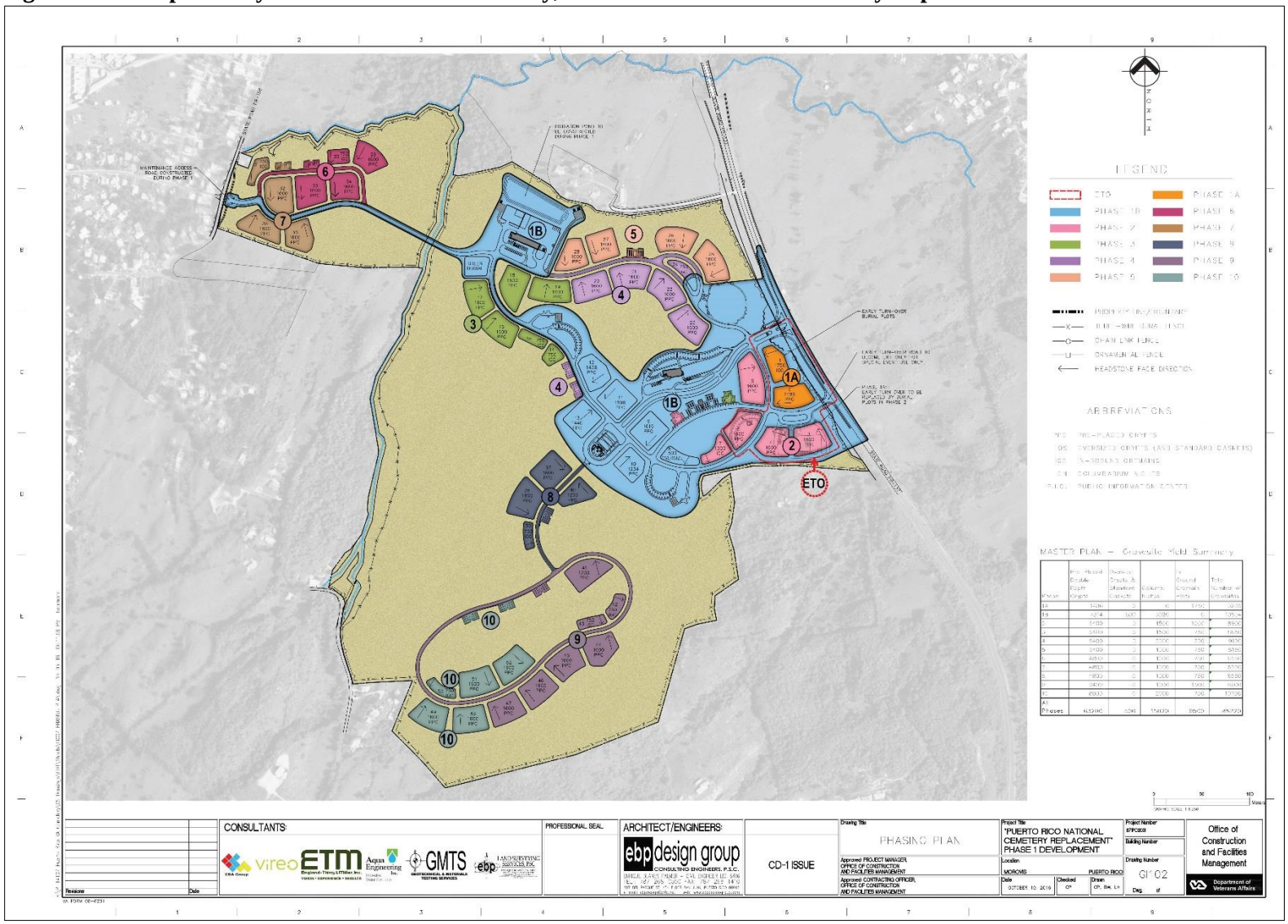
2.1.1 Proposed Action: Construct and Operate Phase 1 of the Puerto Rico National Cemetery Replacement

Under the Proposed Action, Phase 1 of the Puerto Rico National Cemetery Replacement would be constructed and operated on an approximately 50-acre area at the site (VAb, 2016). Figure 4 presents the layout of the Proposed Action. The Phase 1 cemetery encompasses much of the street frontage along Puerto Rico State Road PR-137, extends through the central portion of the site and terminates with a bridge and roadway connection to State Road PR-155 at the northwest portion of the site. Although the Phase 1 cemetery will only develop approximately 50 acres of the 124-acre suitable development area at the site, Proposed Action also includes PRDNER-required off-site compensation measures based on potential future development of the entire 124-acre area at the site. The PRDNER-required off-site compensation measures are described in the following paragraphs in this section.

The Phase 1 cemetery would provide for approximately 10 years of burial operations including casket, columbarium, and in-ground cremation sites; and provide two (2) committal shelters, supporting infrastructure, parking, irrigation, landscaping, visitor amenities, and signage. The Phase 1 cemetery includes the physical infrastructure (e.g. roads, buildings) needed to support potential future burial expansion phases at the site. These potential future burial expansion phases would be located within the 124-acre suitable development area. This phased approach minimizes the need for extensive infrastructure

development should subsequent expansion phases be warranted. As previously noted, the need for potential future cemetery expansion phases would be evaluated approximately every 8-10 years, and the VA would complete separate NEPA analyses in advance of implementing any future phase.

Figure 4. Conceptual Layout of the Phase 1 Cemetery, Puerto Rico National Cemetery Replacement



Note: The Phase 1 cemetery is identified by light blue shading and is the only on-site development area included in this Proposed Action.

The Phase 1 cemetery itself would be constructed as two (2) separate components: Phase 1A, which include the Early Turnover (ETO) area, and Phase 1B, which includes the remaining infrastructure and burial area build out.

The Phase 1A ETO will provide a full-service campus to allow a transition from the Bayamon National Cemetery to the new National Cemetery Replacement in Morovis. Administrative Offices, a Public Information Center, Restrooms, Honor Guard facilities, and Maintenance facilities will be housed in temporary buildings. A temporary Committal Shelter will be utilized, and full-casket and in-ground cremains burials will be available (approximately 3,236 gravesites). Visitors and funeral processions will access the ETO from the Main Entry along PR-137, and exit through a secondary access road onto PR-137. The ETO is anticipated to be constructed and operational within approximately the first 12 months of construction.

The Phase 1B build out would be completed during the following 18 months. It will include all permanent elements of the National Cemetery: Administrative Offices, a Public Information Center, Restrooms, Maintenance Complex, Committal Shelters, Flag/Assembly, Columbarium, Memorial Wall, Ossuary, Memorial Walk, full casketed burials, and in-ground cremains burials (approximately 10,834 gravesites).

The overall specific elements and features included in the Phase 1 cemetery are summarized below (from MP5, 2016):

- **Early Turn-Over Area (ETO):** Consists of areas to be developed and made accessible for use while further construction is underway for the remaining elements of the Phase 1 cemetery.
- **Interment Areas:** Burial sections, including ETO components:
    - Casketed Remains:
        - Approximately 8,800 pre-placed double-depth crypts; 3’ x 8’ plot size
    - Private Vault/Oversized Casket Burial Section; 4’x10’ plot size:
        - Approximately 500 oversized crypts and standard casket gravesites
    - Cremated Remains:
        - Approximately 1,750 in-ground cremain plots
        - Approximately 3,000 columbarium niches
        - Ossuary for cremated remains
    - A “Green” burial section to accommodate a ‘natural’ method of interment.
- **Infrastructure and Additional Program Elements:**
    - Administration/Public Information Center Building (approximately 4,480 gross square feet [gsf]) with Electronic Gravesite Locator (kiosk), public restrooms, security system and associated parking 11 staff
    - Maintenance Complex with Buildings (approximately 7,536 gsf), Service Yard, associated parking, and security system (complex total area approximately 43,267 sf)
    - Honor Guard Building (approximately 1,082 gsf) with lounge/gun cleaning area, restrooms, rifle storage/safe area, and associated parking for 15 volunteers
    - Cortege Staging Area (3 lanes with space for 20 cars each, plus breakout center lane)
    - Memorial Walls (approximately 150 spaces)
    - Committal Service Shelters (2)
    - Memorial Walkway
    - Roadway System and Parking
    - Spoils Area Containment Structure
    - Site Furnishings, Receptacles, Signage
    - Grading, Drainage
    - Fencing and Landscaping, as required for this particular site
    - Irrigation System, as required for this site

- Utility Distribution Systems, including off-site infrastructure, if necessary, to bring utilities to the site
- Incorporate Guiding Principles for High Performance and Sustainable Buildings MOU and Renewable Energy Initiatives.
- LEED and Green Globe requirements may be used to improve sustainability and reduce energy usage
- Protected Habitat Preservation, Avoidance of Wetlands and Surface Water, and Off-site Compensation Commitments
- Fully integrated Global Positioning System (GPS) and Geographic Information System (GIS)

2.1.1.1 Project Design and Development Concept

The following paragraphs summarize major design elements incorporated in the Proposed Action (from MP5).

Avoidance and Minimization of Impacts to Environmentally Sensitive Areas.

Based on VA's survey of the 247.5-acre site and identification of 124-acre area suitable for development and the 123-acre acre that will be preserved, the construction contractor will stake these areas in advance of construction to ensure construction equipment/development remains within the approximately 50-acre Phase 1 development area for the Proposed Action and does not encroach into the preservation area.

The Proposed Action for the Phase 1 cemetery avoids and minimizes impacts to environmentally sensitive areas through a combination of measures. As previously described, the Proposed Action incorporates the avoidance and off-site compensation commitments required by PRDNER under the PRAPEC Special Authorization Determination issued on June 1, 2016. These commitments are summarized as follows:

- Earth movement should be kept to the minimum necessary to conduct the construction activity.
- The 123 acres to remain undeveloped should be in its natural state and free of the construction of any structures.
- The VA should preserve 9 acres within the 124-acre development area, and keep the 9 acres in its natural state and free of the construction of any structures.
- The VA should provide off-site compensation on a 1:1 rate for the impact within the development footprint and on a 3:1 rate for the impact to zanjones; off-site compensation amounts would be based on implementing all potential future development phases within the 124-acre suitable development area, as opposed to accounting for only the 50-acre Phase 1 cemetery development.
- The VA should initiate, within 45 days of application approval, proceedings to establish the Conservation Easement in favor of the PRDNER for the 114 acres of undeveloped land to be preserved.
- Pursuant to 1 June 2016 DNER Authorization Letter (Case #O-NP-AKRON-SI-00356-19012016) Authorization For Karst Physiography, Restricted Karst Area and Its Buffer Zone, VA will submit payment in the amount of $140,000 for agreed upon mitigation. This mitigation is specifically related to the 35-acres of impacts not mitigated through the mechanism of a Conservation Easement. (Cost per acre has been estimated at $4,000, according to an appraisal conducted for an adjacent property.)
- The money will be deposited in the Special Fund of the Natural Heritage Program and used to acquire and preserve lands within the limits of the Las Cabachuelas Natural Reserves.

Additional avoidance and minimization measures incorporated into the Proposed Action include the following:

- Trees: The Phase 1 cemetery is designed to retain as many healthy, mature, native trees as possible. However, approximately 23,596 existing trees will be removed to develop the Phase 1 cemetery. The VA development plan includes planting of approximately 3,000 new, native, non-invasive trees.
- Geology:
    - Zanjones – 41 acres of zanjones (solution trenches) have been identified at the site. The Phase 1 cemetery will impact approximately 11.58 acres of zanjones. Up to 5.42 acres of zanjones could be developed during potential future development phases, if implemented. The remaining 24 acres of zanjones will be preserved and include a 10-meter buffer zone. Additionally, the VA will acquire 158 acres of off-site land to offset the zanjones areas impacted not only by the Phase 1 cemetery, but also potential future development phases.
    - Sinkholes – Nine (9) sinkholes identified by USGS will be avoided, and VA will establish and a 10-meter buffer zone around each where development is prohibited.
    - Karstic depressions – Approximately 19 karstic depressions have been identified at the site Several suspected karstic depressions would be impacted by the Phase 1 development, while others would be avoided and protected by a 10-meter buffer zone where development is prohibited.
    - Cave – Cueva de la Moca, the single cave identified at the site, will be avoided and a 50-meter buffer zone will be established around it where development is prohibited.
- Wetlands/Water of the US: Approximately 0.05 acres of jurisdictional wetlands and two creeks were identified at the site. Both wetlands and creeks will be entirely avoided. Additionally, a 5-meter buffer zone around the wetland and from the top of creek banks will be established where development is prohibited.
- Wildlife: During construction, the USFWS/PRDNER Protection Protocol will be implemented to protect the Puerto Rican Boa (*Epicrates inornatus*), which was the only federally and locally protected species observed at the site, near Fránquez creek. No protected species of flora have been detected within the site.
- Cultural Resources: three cultural resource areas were identified at the site. Each of these will be avoided and include a 50-meter buffer zone where development is prohibited. Additionally, the VA will continue consultation with the PR SHPO and honor any subsequent agreements and commitments to avoid and further minimize potential adverse impacts to cultural resource at the site.

Proposed Use Levels. Upon completion of the Phase 1 cemetery, the National Cemetery would typically be used every day throughout the year. Based on use levels at the Bayamon National Cemetery, approximately five (5) burials per day are anticipated (average 15 cars per procession), between 9:00 AM and 3:00 PM, Monday through Friday (Vagtec, 2016). A total of approximately 206 vehicle trips per day (including staff, volunteers, and visitors) are anticipated (Vagtec, 2016). The cemetery would be closed to the public at night.

Stormwater Management. The Proposed Action complies with the "Energy Independence and Security Act", approved by Congress in 2009 (EISA Section 438), requiring that projects with an area exceeding 5,000 square feet maintain or retain the hydrologic conditions prior to the development of the project USEPA, 2009). Under the Proposed Action, a total of approximately 13.73 acres of impervious surfaces will be created, primarily by constructing roadways (VAb, 2016). Accordingly, the stormwater management plan utilizes a combination of natural features to drain the site to the aquifer below via existing sink holes, caves, and depressions, as well as to a constructed stormwater retention pond to be used for irrigation water (the Proposed Action includes approximately 13 acres of irrigated land). This stormwater

management system is designed to accommodate run-off volumes from a 100-year storm event (VAb, 2016).

Utility Requirements - Electricity, Telecommunications, Septic Sewer, and Potable Supply. The Proposed Action will utilize electricity, telecommunications, septic sewerage, and potable water services available from existing utility providers. Potable water supplied by the utility will not be used for irrigation water. The VA consulted with these utility providers during the master planning process and will continue consultations to confirm additional design-specific alignments and service agreements (VAb, 2016). Additional discussion regarding utilities is provided in Section 3.14.

Sustainability Considerations. Cost-effective energy conserving features would be incorporated into the National Cemetery's design, including energy management control systems and high-efficiency motors; lighting; and heating, ventilation, and cooling (HVAC) systems (VAb, 2016). The proposed facilities would be designed to achieve Leadership in Energy and Environmental Design (LEED) Silver Certification, utilizing the LEED 2009 New Construction and Major Renovations standards. (The LEED Green Building Rating System, developed by the US Green Building Council (USGBC), provides a suite of standards for environmentally sustainable construction.) In accordance with VA's sustainability principles and applicable requirements, the Proposed Action facilities would be designed and constructed to comply with current and emerging Green Infrastructure/Low-Impact Development (GI/LID) requirements of Federal proposed actions, including Executive Order (EO) 13423: Strengthening Federal Environmental, Energy, and Transportation Management (January 24, 2007); EO 13514: Federal Leadership in Environmental, Energy, and Economic Performance (October 5, 2009); EISA 438; and the Energy Policy Act (EPAct) of 2005 (August 8, 2005) (VAb, 2016).

2.1.2 No Action Alternative

The No Action Alternative serves as a benchmark against which the potential impacts of the Proposed Action can be evaluated, as required under the CEQ Regulations (40 CFR Part 1502.14). For this project, the No Action Alternative is defined as not implementing the Proposed Action.

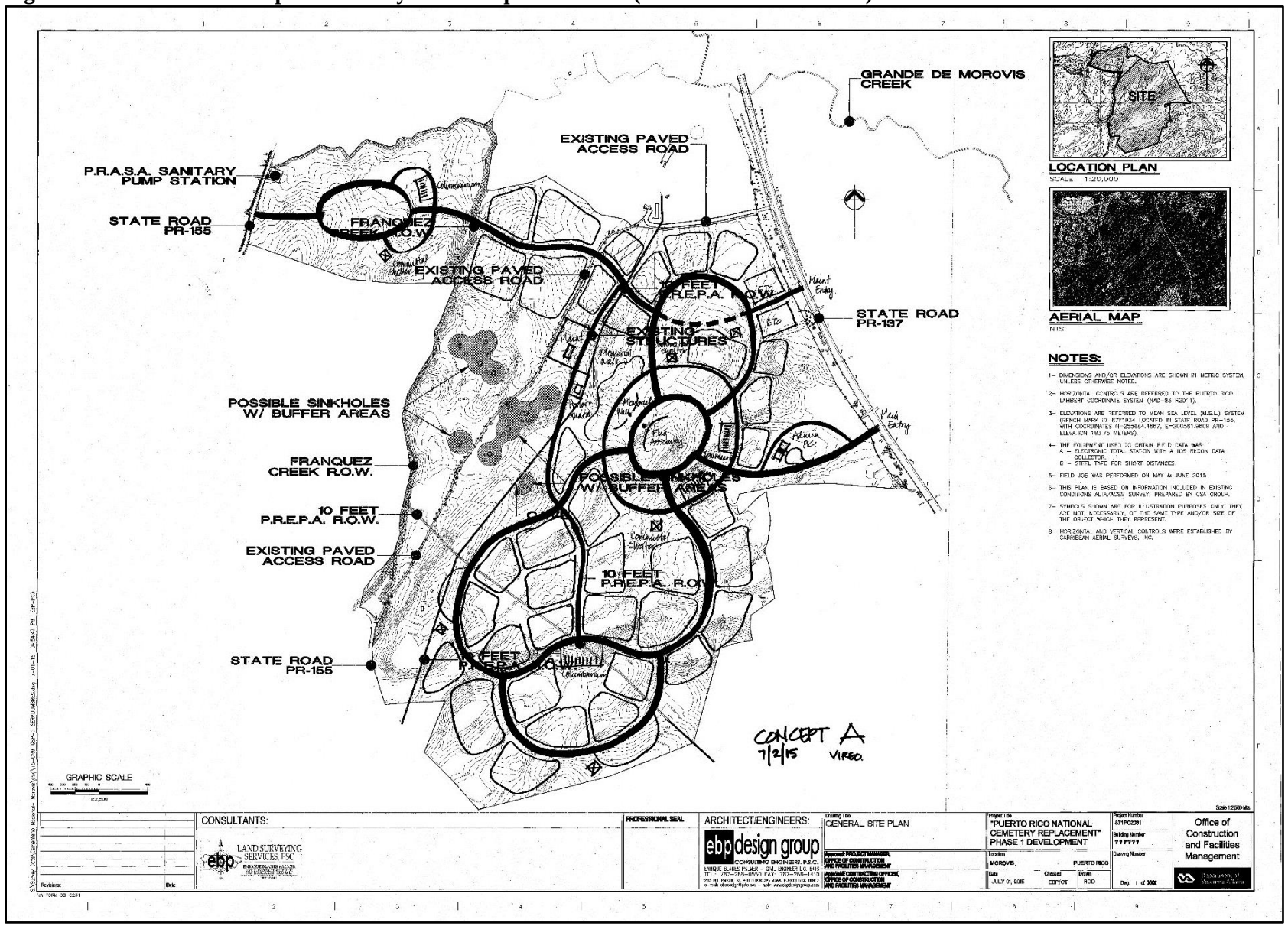
The No Action Alternative would challenge NCA's goal of providing eligible Veterans and their family members with reasonable access to VA burial options in Puerto Rico and, therefore, would not meet the purpose of and need for action. Veterans and their families residing in Puerto Rico would be underserved in the future; in many cases, this would require Veterans and their families to travel overseas to another available National Cemetery or to use a private cemetery. Future burial opportunities at a National Cemetery in Puerto Rico would be unavailable, and VA would not be in compliance with the requirements of the *Service Members Civil Relief Act*. Furthermore, the No Action alternative would create a hardship for the survivors attending the funerals and for grave visitations of deceased Veterans interred in other National Cemeteries, because of the distances between homes and the burial sites. If Veterans and their families must resort to private burials, they are deprived of the benefit and privilege bestowed upon them by a grateful nation for their service to their country.

2.2 Alternatives Identified but Not Evaluated in Detail

During the master planning process, four (4) primary iterations of conceptual designs (Concepts A, B, C, and D) were discussed but ultimately eliminated, because each concept alone did not sufficiently minimize potential impacts to environmental resources at the site. However, selected elements from earlier conceptual designs that maximized the overall beneficial use of the site were incorporated into the final master plan (MP5). For example, MP5 incorporated the general circulation pattern and the location of key site features from Concept C, and the measures to avoid environmentally sensitive resources in the southern portion of the site from Concept A. In general, earlier conceptual designs required more extensive grading and potential impacts to environmentally sensitive resources. Accordingly, these conceptual designs were

eliminated from consideration in the subsequent master plan are not further evaluated in this SEA. For reference, an example of the alternative conceptual layout ("Concept A") is provided in Figure 5.

Figure 5. Alternative Concept for the Layout of Proposed Action (Not Evaluated in Detail).



3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

As previously described, this SEA is tiered from the Final PEA (VA, 2011). Accordingly, when appropriate and applicable information originally presented in the Final PEA and which remains unchanged and accurate for the purposes of analyzing impacts for the Proposed Action and No Action Alternative, that information is not repeated here. Instead, a brief statement is made along with a reference to the Final PEA.

3.1 Aesthetics

3.1.1 Existing Environment

The background description of the site aesthetic conditions described in the Final PEA (VA, 2011) remain unchanged for analysis in this SEA.

3.1.2 Environmental Consequences

3.1.2.1 Proposed Action

Construction. Based on the MP5, construction of the Phase 1 cemetery will take approximately 30 months (12 months for ETO; 18 months for remaining Phase 1 development) and would not necessarily be one continuous period. Construction is anticipated to begin in the fall of 2017 and conclude by the summer of 2020.

Construction of the Phase 1 cemetery would cause direct, short-term, less-than-significant adverse effects on aesthetics. The impact would be caused by clearing approximately 24,000 trees within the 50-acre Phase 1 development area (MP5, July 20, 2016). The aesthetic impact would only be short term because the trees and vegetation in the remaining approximately 197 acres will remain intact under the Proposed Action, and the cleared area will be replanted with native and non-invasive vegetation, including approximately 3,000 trees. Furthermore, under the Proposed Action, a 123-acre preservation area will be established at the site, such that potential future development would only occur within the remaining 124-acre area deemed suitable for development.

Additional temporary aesthetic impacts would be caused by construction activities including excavation, grading, and vehicle travel on paved and unpaved surfaces, which could generate fugitive dust emissions that can lead to nuisance concerns, such as reduced visibility on nearby roadways. Additionally, the presence of heavy equipment used for grading and crypt placement and for the initial stages of building the structures and columbarium, and unfinished stages of site preparation and construction, would temporarily impact the visual quality of the area for visitors to the ETO. However, the remaining Phase 1 cemetery construction areas would be spatially separate from the ETO area, and these construction activities would be conducted with sensitivity for memorial and interment services.

These aesthetic and visual changes would be partially visible from the residential area on the northern boundary of the site, as well as from vehicles traveling along PR-137 and to a lesser extent from PR-155. However, a buffer of undisturbed vegetation and/or maintained plantings at least 20 feet from the site boundary would further reduce visibility into the site by these receptors. Therefore, aesthetic impacts during construction are considered to be direct, short-term, and less-than-significantly adverse. These management and minimization opportunities are reiterated in Section 5.

Operation. During operation of the National Cemetery, there would be direct, long-term, less-than-significant beneficial aesthetic effects on the local area of influence. The landscape within the boundary of the Phase 1 development area would change from unmanaged forest and pasture land to a professionally landscaped and maintained National Shrine with a park-like setting with native and non-invasive vegetation, water features, and buildings designed in accordance with regionally-appropriate architectural

features. Permanent staff will be hired to maintain the park-like appearance of the cemetery grounds and buildings.

During operation, night-time lighting would be limited to illumination of the flagpole, the main entrance road, and security lighting around the buildings. This level of limited lighting is not anticipated to be visible beyond the cemetery border, with the exception of the entrance road lighting along PR-137. Accordingly, the limited lighting is not anticipated to have a significant adverse impact on neighboring residential receptors due to the distance of these receptors from the cemetery and presence of the aforementioned buffer zone between the National Cemetery and residential abutters.

3.1.2.2 No Action

No changes to the site's aesthetic or visual character would occur from the No Action Alternative. Therefore, there would be no impacts to aesthetics. However, the less-than-significant beneficial impact from the Proposed Action (converting unmanaged forest and pasture to a park-like setting) would not occur under the No Action Alternative.

3.2 Air Quality

3.2.1 Existing Environment

The air quality of the regional and local area of impact was described in the Final PEA (VA, 2011) and remains unchanged for analysis in this SEA.

According to the USEPA Region 2, as of January 30, 2015, (most recent data available) and the Puerto Rico Environmental Quality Board (PREQB), Area of Air Quality (AAQ), Morovis is currently designated as a full attainment area for all National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), particulate matter ($PM_{2.5}$ and PM_{10}), and sulfur dioxide (SO_2) (USEPA, 2016).

3.2.1.1 Existing Emissions Sources

According to the EPA's Air Facility System database of compliance and permit data for stationary sources regulated by EPA and Commonwealth air pollution agencies, there are no regulated air emission sources at the site or in Morovis (NEPAssist, 2016).

3.2.1.2 Sensitive Receptors

The CEQ NEPA regulations require evaluation of the degree to which the proposed action affects public health (40 CFR 1508.27). Children, elderly people, and people with illnesses are especially sensitive to the effects of air pollutants; therefore, the schools, hospitals, convalescent facilities, and residential areas previously identified in Section 1.3 are considered to be sensitive receptors for air quality impacts.

3.2.2 Environmental Consequences

3.2.2.1 Proposed Action

Construction. The Proposed Action is anticipated to result in direct, short-term, less-than-significant adverse impacts on air quality. This impact would occur during the approximately 30 months (fall 2017 through summer 2020) of construction associated with excavation, grading, and construction of roadways and buildings described for the Proposed Action (VAb, 2016). In particular, development of the Phase 1 cemetery would require a substantial amount of earthwork, including importing approximately 1.3 million cubic yards of fill from an off-site borrow source.

Particulates are the main air pollutant of concern from construction projects. Construction activities would generate both coarse and fine particulate emissions from soil excavation and removal, grading and sloping, and small-scale road construction. The amount of particulate emissions can be estimated from the amount of ground surface exposed, the type and intensity of activity, soil type and conditions, wind speed, and dust control measures used.

To provide a conservative estimate of particulate matter (PM) emissions potentially emitted during construction, the annual emissions of total suspended particulates generated from construction were calculated using the emission factors for heavy construction activity operations from "AP-42, Compilation for Air Pollutant Emission Factors" (USEPA, 1995). Estimates are shown in Table 1.

Table 1. Estimate of Annual Particulate Emissions from Construction

Total Area (acres)	Exposed Area (acres)	Construction Duration (months)	Emission Factor (tons/acre/month)[1]	Control Efficiency (%)	Total Suspended Particulate Emissions (tons/year)
50	50	30	1.2	80	144

Notes:
1 - Emission factor for "Heavy Construction Operations" (USEPA, 1995)

Non-road construction vehicles would emit criteria pollutants during construction of the Phase 1 cemetery. Criteria pollution emissions from construction equipment were calculated assuming the use of 6 backhoes, 2 graders, and 2 bulldozers operating for approximately 8 hours per day for a total of 653 weekdays (30 months). Emissions were estimated using "Off-Road – Model Mobile Source Emission Factors" from the California South Coast Air Quality Management District (SCAQMD, 2014) because Puerto Rico and federal EPA emission factors are not available. Table 2 shows estimated annual emissions (detailed calculations are presented in Appendix A). Emissions of VOCs, CO, NOx, SOx, and lead are below *de minimis* thresholds; therefore, a General Conformity determination is not required.

Table 2. Estimate of Annual Non-Road Emissions of Criteria Pollutants During Construction

Criteria Pollutant[1]	VOCs[3]	CO	NOx	SOx	Lead
Emissions (tons/year)[2]	1.17	5.59	8.76	0.013	0
de minimis threshold level (tons/year)	100	100	100	100	25

Notes:
1 - PM emissions from non-road construction vehicles are included in the general construction emissions factor applied in the estimates in Table 1, and therefore non-road emissions of PM are not included in this table.
2 - Calculated using "Off-road Mobile Source Emission Factors (Scenario Years 2007 – 2025) (SCAQMD, 2014).
3 - VOCs are assumed to be equivalent to Reactive Organic Gases for calculating non-road construction equipment emissions.

As previously described, constructing the Proposed Action would require grading (cutting and filling) ;up to approximately 1.3 million cubic yards of fill would be imported to the site from an off-site borrow source. This would require approximately 83,000 truck trips to transport this fill (based on an approximate capacity of 16 cubic yards per truck). For the purpose of this SEA, it is assumed a borrow source would be located within 30 miles from the site. The estimated annual air emissions from this on-road activity, presented in Table 3. Combined with the estimated annual emissions from the non-road construction activities, total emissions would still be less than *de minimis* threshold levels.

Table 3. Estimated Annual On-Road Haul Truck Emissions for Construction of the Proposed Action

Criteria Pollutant	VOCs[3]	CO	NOx	SOx	PM[4]
Annual emissions, tons[1,2]	0.71	1.82	6.18	0.03	0.42

Notes:
1 - Emission Estimation Method for Hauling Excavation Materials and Construction Supplies: United States Air Force (USAF) Institute for Environment, Safety and Occupational Health Risk Analysis (IERA) Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations (Revised December 2013) (USAF, 2013).
2 - Emissions factors for all pollutants for Heavy Duty Diesel Vehicle Average Emission Factors (in USAF. 2013).
3 - VOCs are assumed to be equivalent to Reactive Organic Gases for calculating non-road construction equipment emissions.
4 – PM represents $PM_{2.5}$ and PM_{10} combined.

To ensure impacts remain at or below less-than-significant adverse levels, the VA will reduce emissions by implementing Best Management Practices (BMPs), including use of reasonably available control measures (generally including water spray for dust suppression) to prevent fugitive dust from becoming airborne. Impacts would be further minimized through construction scheduling (suspend construction during periods of sustained high wind speeds), maintaining vehicles in good working order, limit engine idling by turning off engines after three (3) minutes of inactivity, decreasing vehicle speed limits to 15 miles per hour or less while onsite to reduce fugitive dust generation, and obeying posted vehicle speed limits while off-site. Additionally, the VA will quickly re-vegetate exposed soils following completion of construction activities in designated areas. These management and minimization opportunities are reiterated in Section 5.

Operation. During operation of the Phase 1 cemetery, sources of air emissions would include the vehicles operated by visitors and staff traveling to and from the cemetery, and an emergency standby generator. A Title V operating permit is not anticipated to be required for the proposed generator, as the generator is not anticipated to emit more than 100 tons per year of any individual Hazardous Air Pollutant (HAP) or combination of HAPs. Additionally, the VA's operational maintenance vehicles would be maintained in good working condition.

Based on a site-specific traffic impact study and use levels at the National Cemetery in Bayamon, the Proposed Action would result in an increase of approximately 206 vehicles per day to the local area (Vagtec, 2016). However, the vehicle emissions generated during operation of the Proposed Action would be less than emissions generated under the No Action Alternative; the National Cemetery in Bayamon is anticipated to reach full in-ground interment capacity by 2022 and columbarium capacity by 2030. If the Proposed Action is not implemented by the time Bayamon reaches full capacity, then burials that otherwise could have occurred in Puerto Rico would occur at a National Cemetery located on the US mainland. This would require families and visitors to travel by airplane and car from Puerto Rico to the US mainland. This travel to the US mainland would generate greater emissions compared to travel within Puerto Rico. Accordingly, operating the Proposed Action would result in fewer transportation-related emissions, as travel to and from a National Cemetery would remain within Puerto Rico.

Therefore, while operation of the Proposed Action would result in greater vehicle emissions compared to existing conditions, these emissions would be less than those that would occur under the Action Alternative, as described in the following section.

In summary, operation of the Proposed Action would result in a negligible adverse impact on emissions.

3.2.2.2 No Action Alternative

Under No Action, the National Cemetery would not be constructed; therefore, no significant adverse air quality impacts associated with construction would occur. However, as previously described for the operation of the Proposed Action, the No Action Alternative would ultimately result in greater emissions

generated by families and visitors traveling by air and car from Puerto Rico to a National Cemetery on the US mainland. Therefore, the No Action Alternative would have a long-term, less-than-significant adverse impact on air quality in comparison to the Proposed Action's operational impact.

3.3 Cultural Resources

The VA's compliance responsibilities for management of cultural resources are guided by requirements set forth in the National Historic Preservation Act (NHPA), the Native American Graves Protection and Repatriation Act (NAGPRA), the Archaeological Resources Protection Act (ARPA), Executive Order 13007, the American Indian Religious Freedom Act (AIRFA), 36 CFR 79, Curation of Federally Owned and Administered Collections, and Presidential Memorandum on Government-to-Government Relations with Native American Tribal Governments. Cultural resources include: historic properties as defined in the NHPA; cultural items as defined by NAGPRA; archeological resources as defined in ARPA; sacred sites as defined in EO 13007 and AIRFA; and, collections of cultural materials as defined in 36 CFR Part 79. Regulations applicable to the VA's management of cultural resources include those promulgated by the Advisory Council on Historic Preservation (ACHP) and the National Park Service (NPS).

3.3.1 Existing Environment

As described in the Final PEA (VA, 2011), the VA initiated Section 106 consultation with the PR SHPO and completed a Phase I archaeological survey of the 247.5-acre parcel. The following section presents a brief summary of previous cultural resource investigation findings, as well as new information obtained following the Final PEA regarding additional Phase II cultural resource investigations and Section 106 consultations with the PR SHPO.

Archeological Resources: An archeological investigation in 2006 identified four cultural resources: two (2) open-air archeological sites, a cave site, and historic period petroglyphs composed of two crosses carved into rock outcrops (see Figure 6). The Phase I archeological survey for the acquisition stage completed in 2010 documented two additional small sites identified as Quebrada Fránquez 1 (MR0100012) and Quebrada Fránquez 2 (MR0100013). Quebrada Fránquez 1 was a spatially discreet scatter of prehistoric materials; Quebrada Fránquez 2 was a slightly larger site that included both historic period and prehistoric materials. In addition, the Pre-Columbian cave site with a possible prehistoric interment at the mouth, Cueva de la Moca (MR0100010), was revisited, and one element of the historic period petroglyph site, Las Cruces de Catalina (MR0100011) was documented. Las Cruces de Catalina (MR0100011) was identified as crosses carved in stone in the area of Fránquez. Local tradition indicates that these crosses were carved in the early twentieth century by a local woman who was possessed by the unavenged spirit of her younger lover who died in prison, falsely accused of a crime. This resource constitutes an archeological site, i.e., a petroglyph, apparently consisting of folk art that evinces a tradition of folk Catholicism during the first two decades of the twentieth century, and may constitute a Traditional Cultural Property (TCP) related to folk religion of *Jibaros Moroveños* a local manifestation of Puerto Rico's interior rural *Jibaro* culture.

Based on the Final PEA (VA, 2011), the VA determined that the acquisition phase of the project would have no adverse effects on the following historic properties: Quebrada Fránquez 1 (MR0100012), Quebrada Fránquez 2 (MR0100013), Cueva de la Moca (MR0100010), and Las Cruces de Catalina (MR0100011). The SHPO concurred with that finding for the acquisition phase in a letter dated June 9, 2011, and requested evaluation of archeological sites as well as an intensive archeological survey work plan (Phase II Cultural Resources Investigation Work Plan [Phase II Work Plan]).

Subsequently, on August 13, 2015, the VA reinitiated Section 106 consultation with the PR SHPO, and on October 22, 2015, the PR SHPO mailed a letter requesting that the VA prepare a Phase II Cultural Resources Investigation Work Plan to further evaluate three archeological resources identified during the 2006 Phase I survey, including: Quebrada Fránquez 1 (MR100012), Quebrada Fránquez 2 (MR100013) and Las Cruces

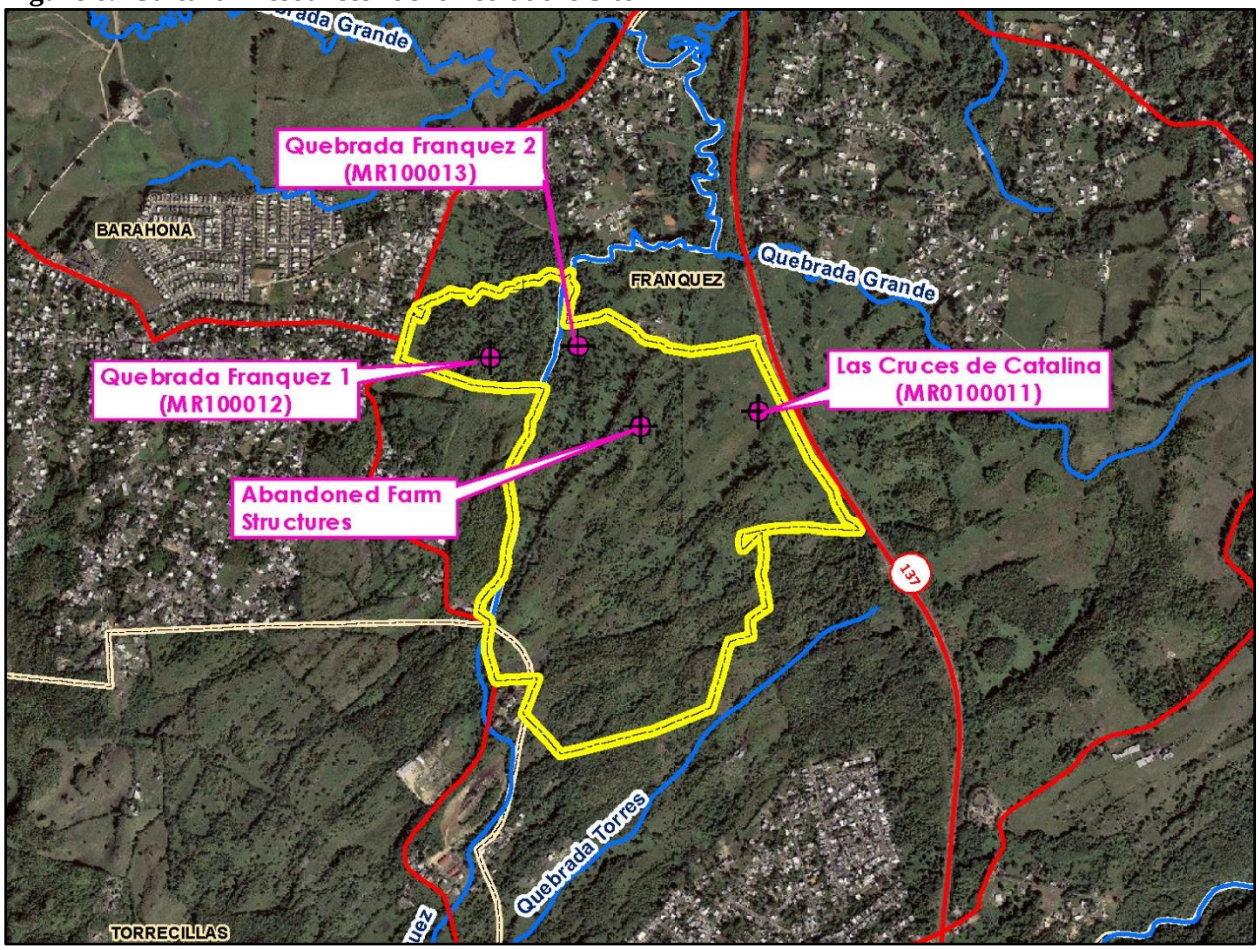
de Catalina (MR0100011). Additionally, the PR SHPO requested an evaluation of the abandoned structures at the site (i.e. "dairy farm remains").

Accordingly, on December 3, 2015, the VA submitted Draft Phase II Cultural Resources Investigation Work Plan to PRSHPO for review. On January 7, 2016, the PRSHPO issued a letter with comments and recommendations for the revised Phase II Cultural Resources Investigation Work Plan. On January 28, 2016, the VA submitted the Final Phase II Cultural Resources Investigation Work Plan, and on March 2, 2016, the PRSHPO issued an approval letter.

In June 2016, VA's consultant CSA Architects & Engineers, LLP (CSA) performed the Phase II Cultural Resources Investigation. The results of the Phase II investigation were summarized in a report dated December 7, 2016 by N. Medina Carrillo, PhD. Dr. Carrillo concluded that only the Cueva de la Moca was eligible for inclusion in the National Register of Historic Places (under Criterion D), as it may "have yielded or may be likely to yield, information important in history or prehistory." Based on these findings, the VA on January 6, 2017 submitted the results of the Phase II investigation to the SHPO with a request for concurrence that the resources were "not eligible" for inclusion. The SHPO responded in a letter dated February 13, 2017, stating that the information did not provide a substantive basis for the conclusions presented in the report, and therefore the SHPO could not concur based on that information received to date. In reponse, the VA on February 23, 2017 submitted additional field data obtained during the Phase II investigation to the SHPO for review. At this time, consultation with SHPO regarding findings of the Phase II investigation is on-going.

Subseuqent Section 106 coordination and correspondence with the SHPO will be included in the Final SEA. Additionally, as previously described, the VA has designed the Phase 1 cemetery (as well as potential future development phases) to entirely avoid all of the aforementioned cultural resource sites. Accordingly, a 50-meter buffer zone would be maintained between each of these cultural resources and the cemetery development areas. Additional information about the avoidance measures are provided in the next section.

Figure 6. Cultural Resources Identified at the Site



Note: Yellow outline shows site boundary.

3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

Construction. The Area of Potential Effect (APE) for historic properties for the Proposed Action varies depending on the type of resource in question. For archeological properties, the APE is limited to areas of proposed ground disturbance. For the Proposed Action (construction and operation of the Phase 1 cemetery) the APE would effectively be the 50-acre Phase 1 cemetery area within the 247.5-acre site. Accordingly, the Proposed Action entirely avoids development of the archaeological resources. The Proposed Action will establish a buffer zone of 50-meters around Quebrada Fránquez 1 (MR100012), Quebrada Fránquez 2 (MR100013), and Las Cruces de Catalina (0100011), where development is prohibited. Additionally, except for Cueva de la Moca (MR0100010), all of the archaeological resources are located within the 123-acre preservation area. Therefore, the Proposed Action would have no adverse impact on any of these archeological resources identified at the site. To further ensure no adverse impacts occur, the VA will implement the following minimization and management measures:

- Prior to construction, the VA will obtain concurrence from the PRSHPO regarding the VA's anticipated finding of "No Adverse Effects to Historic Properties" per 36 CFR800.5(a)(1) (i.e., Section 106 of the NHPA) for this undertaking with regard to effects to historic properties.

- Establish a 50-meter buffer zone around Quebrada Fránquez 1 (MR100012), Quebrada Fránquez 2 (MR100013), and Cueva de la Moca (MR0100010).
- The Memorial Walk will encircle the Las Cruces de Catalina site, though development of the Las Cruces de Catalina site will be avoided (VAb, 2016). While the actual location of the artifact may not be visible along the walk, the Proposed Action may include interpretive signage to present the significance of the region, and the environmental and historical elements found within.
- Should human remains or other cultural items as defined by NAGPRA be discovered during project construction, the construction contractor would immediately cease work until the VA, a qualified archaeologist, and the PRSHPO are contacted to properly identify and appropriately treat discovered items in accordance with applicable Commonwealth and Federal law(s).

Implementation of these avoidance, minimization, and management measures will ensure that no adverse impacts occur. These avoidance, minimization, and management measures are reiterated in Section 5.

Operation. Operation of the Proposed Action would no impact on the APE. The VA would continue to maintain the buffer zone of 50-meters around Quebrada Fránquez 1, Quebrada Fránquez 2, and Cueva de la Moca, to ensure development does not occur near these areas. Furthermore, the VA would ensure the 123-acre preservation area, which encompasses Quebrada Fránquez 1 and 2 and the Cueva de la Moca, remains in place.

3.3.2.2 No Action Alternative

Under the No Action Alternative, the cultural resource sites would remain in their existing condition. Therefore, no cultural resources impacts would occur under the No Action Alternative.

3.4 Geology, Topography, and Soils

3.4.1 Existing Environment

3.4.1.1 Geology

The Final PEA (VA, 2011) included a description of regional background geological conditions that remain unchanged for analysis in the SEA, and therefore this information is not repeated here. Substantive new site-specific geology information is presented below.

Following PRDNER's Special Authorization Determination on June 1, 2016, the VA completed a site-specific hydrogeologic investigation (GMTS, Hydrogeologic Study Report for Puerto Rico National Cemetery, August 18, 2016) and a geotechnical engineering investigation (GMTS, Geotechnical Engineering Report on Subsoil Exploration for Puerto Rico National Cemetery, August 31, 2016) to better refine the requirements for earthwork, stormwater management, and aquifer recharge at the site. A summary of this information, as well as site-specific karst geology provided in the MP5 Project Narrative, is provided below and depicted on Figure 7.

The 247.5-acre site is located on the southernmost strip of the plateau of the Limestone Series of the North Coast (VAb, 2016). It is located in a boundary strip where there is an abrupt morphologic change from the outcrops of magmatic rocks, intrusive rocks, volcanic rocks, and sedimentary rocks of volcanic origin, to a karst morphology consisting of the limestone outcrops of the North Coast. This morphologic change is marked by the presence of a steep morphologic scarp, corresponding to the abrupt transition between the magmatic geologic formations from the late Cretaceous Period, and the sedimentary calcareous formations, deposited along the Tertiary Period. Within the area of the site, this change occurs along an imaginary line drawn between the municipalities of Morovis and Ciales.

Zanjones (Solution Trenches): Approximately 29 zanjones features covering approximately 41 acres are present at the entire 247.5- acre site. Of these 41 acres of zanjones, approximately 24 acres are located within the 123-acre preservation area, and the remaining 17 acres of zanjones are located within the 124-acre suitable development area. Of these 17 acres of zanjones, approximately 11.58 acres are located within the approximately 50-acre Phase 1 cemetery development area. The remaining 5.42-acres of zanjones are located outside of the Phase 1 cemetery development area but within the 124-acre suitable area for potential future development. These features are correlated to the Lares Limestone and Cibao Formations of Puerto Rico which are in vicinity of the site. These areas are characterized by materials ranging from pure limestone to sandy and silty chalk or marl and can extend up to 800-feet bgs. The lineament system present at the site fosters the development of zanjones, which the USGS reported as occupying the north and central portions of the site. According to the USGS Ciales Quadrangle information, the major density of dolines or sinkholes occurs in the west-central side of the property, where thick layers of the Lares Limestone outcropped.

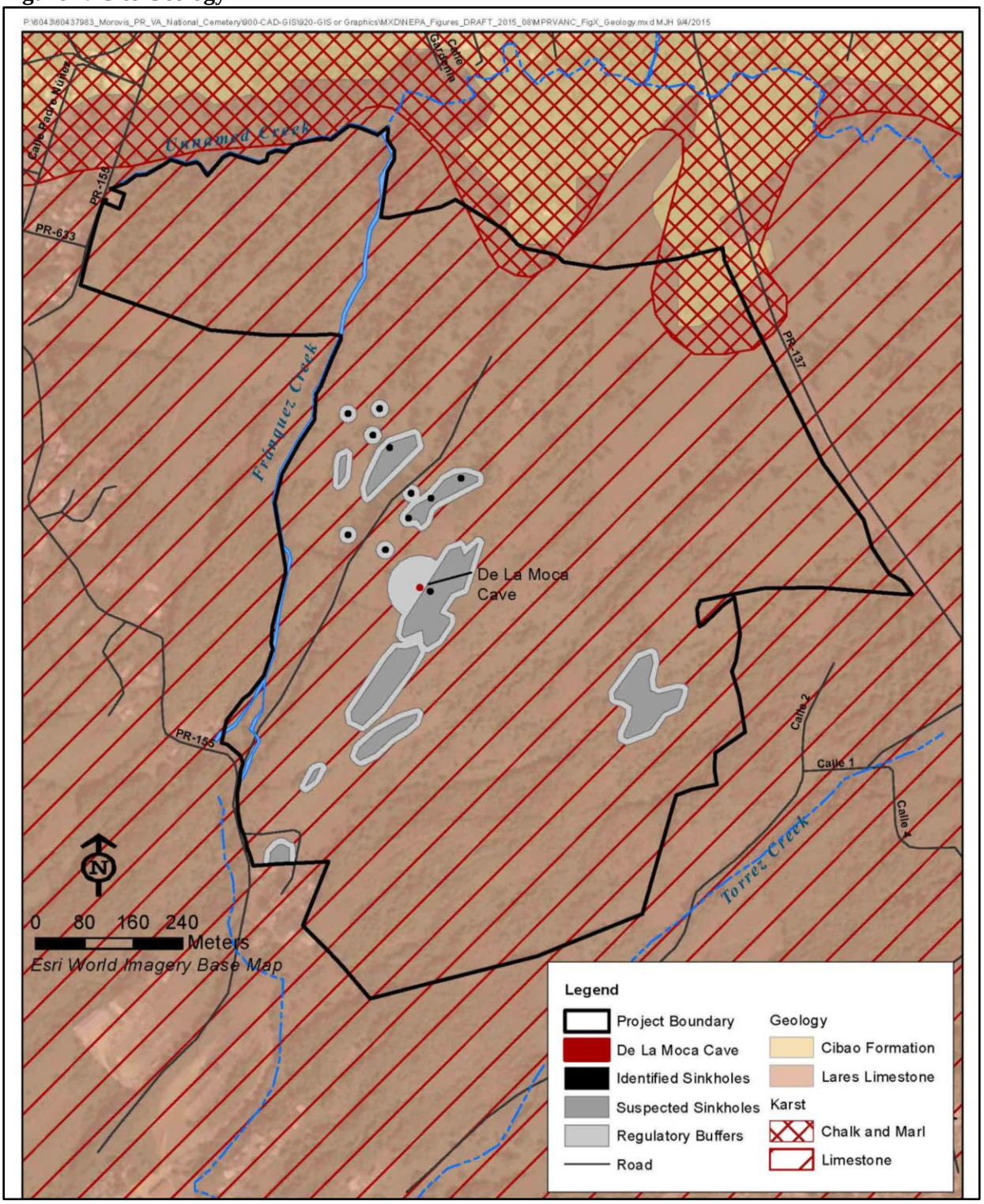
Sinkholes and karstic depressions: There are karstic depressions that have joined laterally, creating wider depressions at the site. Additionally, there are elongated karstic depressions of zanjones, which have developed into large semicircular depressions that present local drainage pattern similar to local endorheic systems with potential development of sinkholes.

According to the USGS, approximately nine (9) sinkholes are present within the entire 247.5-acre site. However, all of these sinkholes are located within the 123-acre preservation area where no development would occur. Based on the topographic survey and the *Geomorphologic Study Report on Risk Analysis of Karst Environment for Puerto Rico National Cemetery*, several karstic depressions also have been identified at the site.

Caves: The Cueva de la Moca was the only cave identified at the entire 247.5-acre site. However, the cave is located within the 123-acre preservation area. This cave is a karstic feature. The cave is located at the foot of the west-facing flank of a northeast trending elongated karstic hill. An adjoining doline contains the cave opening. The cave is derived from solution processes within the Lares Limestone and has one opening/entrance. The cave contains a single arched chamber that spans approximately 80 meters (260 feet) long and approximately two (2) meters (7 feet) wide. The height of the cave varies from approximately two (2) meters (7 feet) near the vestibule to nearly 2.5 meters (8 feet) toward the end. The cave runs southeasterly changing to a southerly direction towards the end. Several fragments of limestone were observed on the floor and adjacent to each wall. Few speleothems are present in the cave. However, a small group of rimstone pools or dams were observed near the end of the cave produced from water dripping from the cave's ceiling onto the floor surface. Although the rimstone pools did not have water accumulated, water droplets percolating from the exterior via rock diaclase pathways accumulated on the ceiling of the cave.

No other relevant speleothems forms were present as the cave is devoid of significant dripstones or flowstone forms. Some trogloxene species such as cockroaches (*Periplaneta americana*), cave crickets (*Ceuthophilus* sp.), and guabá or whip spider (*Phrynus longipes*) were observed on the ceiling and walls of the cave. The presence of bats or guano was not detected.

Figure 7. Site Geology

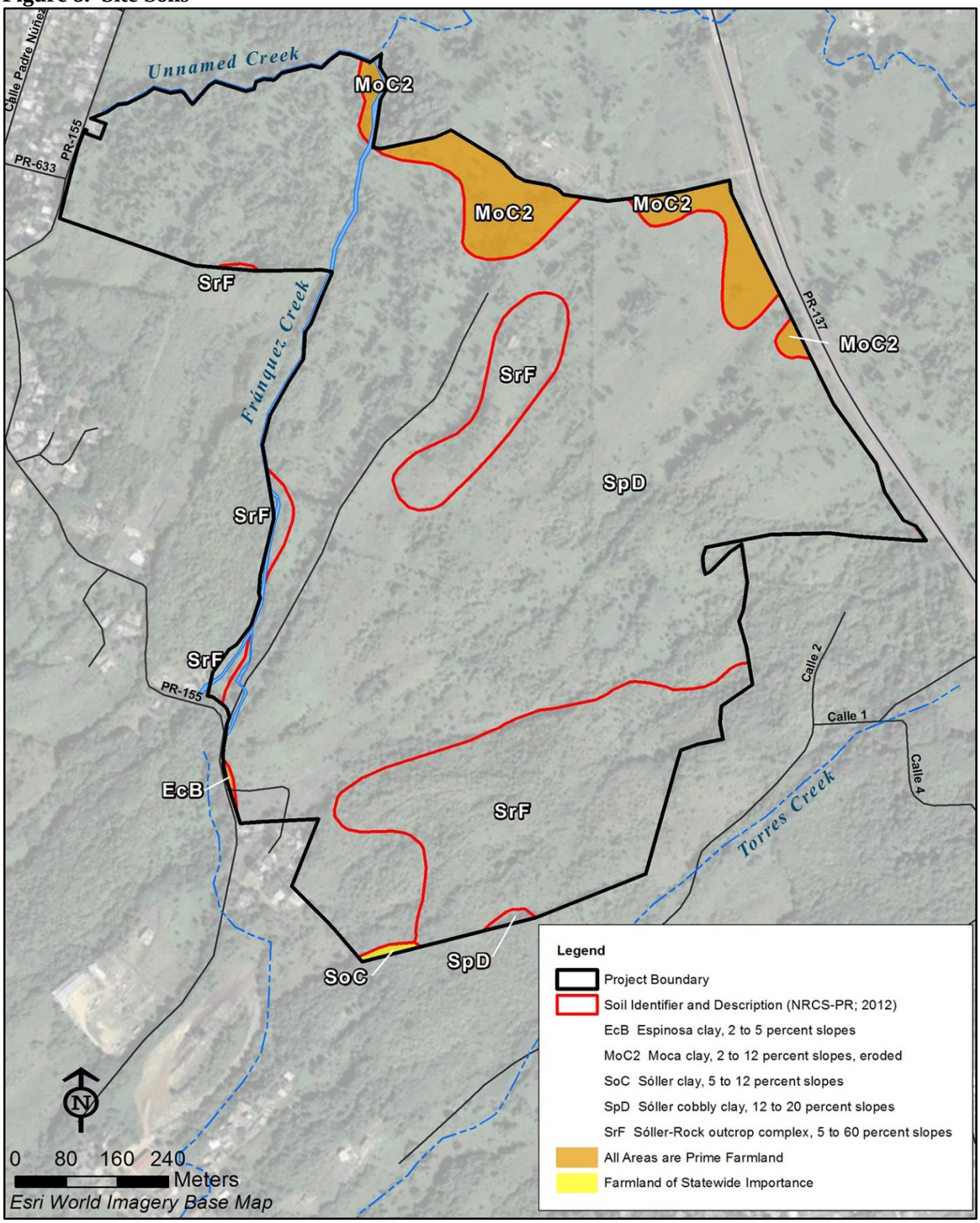


3.4.1.2 Soils

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Caribbean Office (USDA NRCS, 2010), the entire site contains five (5) soil types identified as Espinosa clay (2 to 5 percent slopes), Moca clay (2 to 12 percent slopes) eroded, Soller clay

(5 to 12 percent slopes), Soller cobbly clay (12 to 20 percent slopes), and Soller rock outcrop (5 to 60 percent slopes), as summarized in Table 4, and depicted in Figure 8.

Figure 8. Site Soils



The Espinosa clay soils are characterized as well drained soils with a moderately high to high permeability. The Moca clay soils are characterized as moderately well drained soils with a moderately high permeability. The Soller clay soils are characterized as well drained soils with a very low to moderately low permeability. The Soller cobbly clay soils are characterized as well drained soils with a very low to moderately low permeability. The Soller rock outcrop soils are characterized as well drained soils with a very low to moderately low permeability.

Table 4. Soils Mapped Within the Site

Soil Map Unit Symbol	Soil Map Unit Name	Drainage Class	Prime Farmland	Percent Cover of Entire Site	Acres at Entire Site
SpD	Coller cobbly clay (12 to 20% slopes)	Well drained	No	77.88	192.7
SrF	Soller-Rock outcrop (5 to 60%) slopes	Well drained	No	17.01	42.1
MoC2	Moca clay (2 to 12% slopes)	Moderately well drained	Yes	4.97	12.3
EcB	Espinosa clay (2 to 5% slopes)	Well drained	Yes	0.05	0.12
SoC	Soller Clay (5 to 12% slopes)	Well drained	Yes	0.09	0.22

3.4.1.3 Prime Farmland

Prime and Unique Farmlands are regulated in accordance with the Farmland Protection Policy Act (FPPA) (7 USC 4201, et seq.) to ensure preservation of agricultural lands that are of Statewide or local importance. Soils designated as prime farmland are capable of producing high yields of various crops when managed using modern farming methods. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Unique farmlands are also capable of sustaining high crop yields and have special combinations of favorable soil and climate characteristics that support specific high-value foods or crops.

According to the USDA NRCS Caribbean Office Web Soil Survey data presented in Figure 8, approximately 5% (12 acres) of the entire site soils are characterized as prime farmland (soil map unit symbols MoC2, EcB, SoC) (USDA NRCS, 2010). Currently, none of these prime farmland soils are currently in, or planned for, use for agricultural production. The site soils are illustrated in Figure 8. Puerto Rico has approximately 441,000 acres of prime farmland or other land suitable for agricultural use (Mar Lopez, 2001). Therefore, the prime farmland area at the entire site accounts for approximately 0.003% of prime farmland within Puerto Rico.

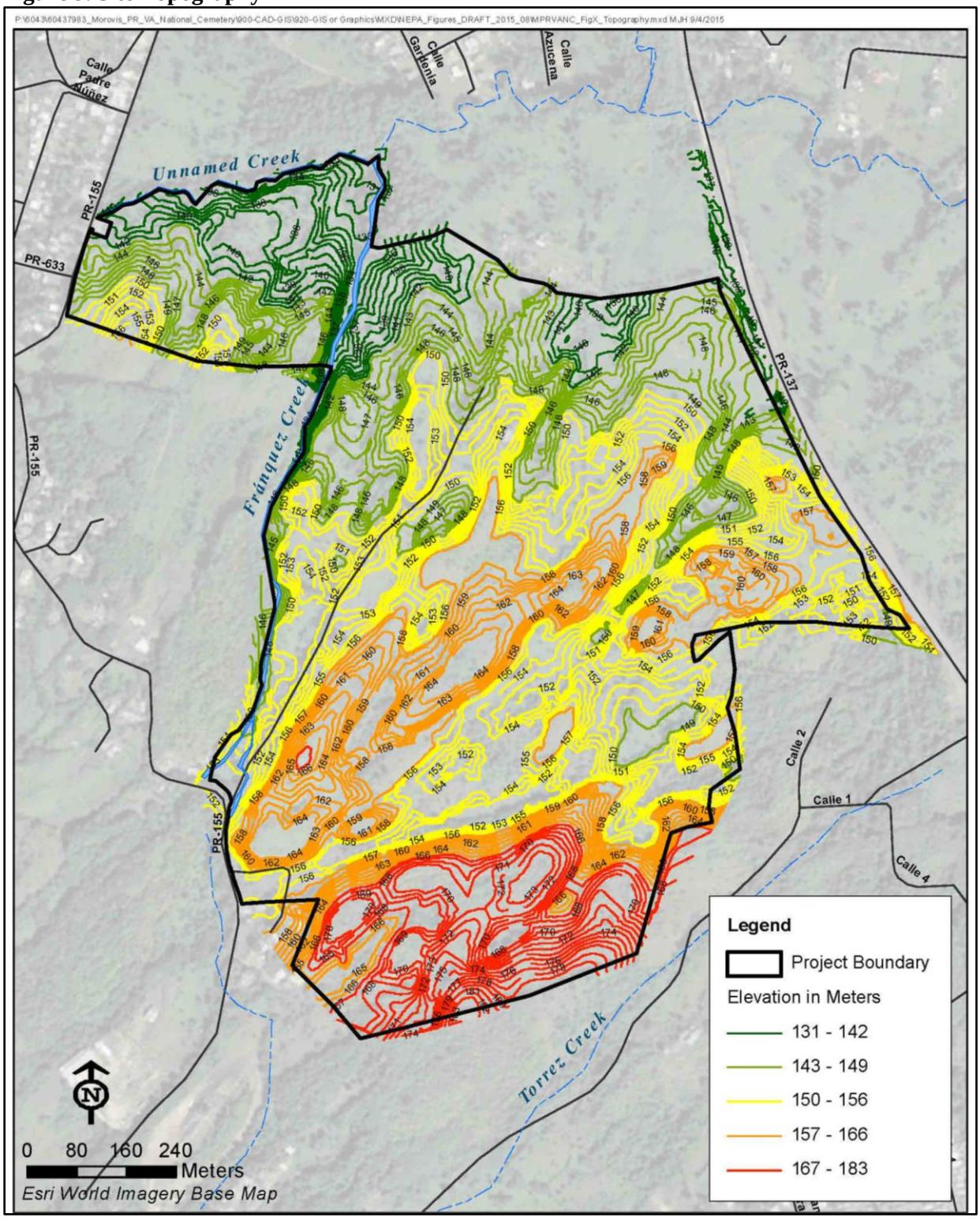
3.4.1.4 Topography

A review of the Ciales, Puerto Rico United States Geological Survey (USGS) Topographic Quadrangle (USGS, 1982) and an existing conditions survey of the site prepared by CSA indicated that surficial topography of the site is hilly with roughly southwest to northeast oriented ridges and valleys and an overall slope from southwest to northeast, grading downward mostly northeast toward the Grande de Morovis creek, and an environment of elongated hills of low relief. Elevations range from approximately 182-meters above mean sea level (amsl) in the southern portion of the site to approximately 130-meters amsl in the northern portion of the site (see Figure 9). Slopes vary from very steep to moderate. These hills have a sub-parallel configuration and alternate with small and shallow elongated valleys (zanjones).

Topographic features of the area are controlled by the effect of previous karst development typical of the middle Tertiary limestone formations of northern Puerto Rico. At some particular areas, the topography of the property exhibits semi-circular closed depressions (suspected sinkholes or dolines), cave and solution trenches (zanjones). These physiographic features are commonly developed as a result of karstification process from the dissolution of carbonate rocks ($CaCO_3$, limestone) activated by the action of water, producing a karstic topography.

Over time, the topography of the site has been altered due to internal road development, placement of power infrastructure and the PREPA easement (maintenance), construction of concrete structures within the site, and prior agricultural, cattle and horse pasture practices that "rounded-off" some of the site's topographic relief. The topography around the perimeter of the site has been directly impacted by development of residential areas and PR-137 and PR-155; based on a review of aerial imagery, PR-155 and PR-137 bisected and interrupted the natural alignment of some of the topographic features (i.e. zanjones) at the site.

Figure 9. Site Topography



3.4.3 Environmental Consequences

3.4.3.1 Proposed Action

3.4.3.1.1 Geology

Construction. Construction of the Proposed Action would have a direct, long-term, less-than-significant adverse impact to geology. These impacts will be maintained at less-than-significant levels because the VA has designed the Phase 1 cemetery to avoid these features to the maximum extent possible, implement management measures (buffer zones) to further minimize impacts, and perform off-site compensation measures where avoidance is not practical per the PRDNER Special Authorization Determination issued on June 1, 2016. As requested by PRDNER, the VA will incorporate into the Proposed Action the off-site compensation measures based on implementation of all potential future development phases at the 124-acre suitable development area—rather than only the 50-acre Phase 1 cemetery development area, which is the only development phase that the VA is proposing at this time. The following impacts would occur during construction of the Phase 1 cemetery:

Zanjones: Of the 41 acres of zanjones present at the entire site, approximately 17 acres are within the 124-acre suitable development area, which is the area where all 10 potential future development phases could occur over the next 100 years (VAb, 2016). However, of these 17 acres, only approximately 11.58 acres of zanjones are within the 50-acre Phase 1 cemetery development area; therefore, only these zanjones would be impacted during Phase 1 cemetery construction. Portions of these zanjones occurring mostly along the northern and northeastern portion of the site would be altered for the construction of access roads, columbarium, and Pre-Placed Crypts (PPCs). The remaining 24 acres of zanjones areas are located within the 123-acre preservation area which would be maintained in its current natural condition. Additionally, a 10-meter buffer zone will be created around each zanjones area to ensure development is prevented in those areas during any potential future development phase (VAb, 2016).

Additionally, as previously described above and in Section 2.1.1, while the Phase 1 cemetery will only impact approximately 11.58 acres of zanjones, the VA will provide for off-site compensation for the overall potential future development of a total of 17 acres of zanjones, as per the PRAPEC Special Authorization Determination issued by PRDNER on June 1, 2016

Sinkholes and karstic depressions: All of the nine (9) sinkholes identified by the USGS are located within the 123-acre preservation area. Therefore, because none of the sinkholes area located within the 50-acre Phase 1 cemetery development area, or elsewhere within the 124-acre suitable development area, the Proposed Action would have no adverse impact on sinkholes. To further ensure no impact occurs to sinkholes, a 10-meter buffer would be established around each sinkhole to prevent development during any potential future phase (VAb, 2016).

The suspected karstic depressions would be subject to impacts due to Phase 1 cemetery preparation and development (e.g. cut and fill) (VAb, 2016). As previously described above and in Section 2.1.1, the VA will provide for off-site compensation at the rate of 1:1 for the overall impact both from the Phase 1 cemetery Proposed Action *and* any potential future development phase within the 124-acre suitable development area, as requested by PRDNER under the PRAPEC Special Authorization Determination letter dated June 1, 2016.

Cave: The Cueva de la Moca is located in the 123-acre preservation area. Therefore, the Phase 1 cemetery (as well as any potential future development phase) entirely avoids the Cueva de la Moca. However, as part of the Proposed Action, a 50-meter buffer zone will be established around the cave; a fence and signs will be installed around this perimeter to further protect the cave (VAb, 2016).

Other Geologic Features

Based on currently available data, no active significant faults are known at this time to extend through the site's subsurface geology. As such, no impacts associated with seismic hazards are identified. No significant impacts to mineral resources are anticipated, as the Proposed Action would not involve the commercial extraction of mineral resources, nor affect mineral resources considered important on a local, Commonwealth, national, or global basis.

Additionally, based on VA's survey of the 247.5-acre site and identification of 124-acre area suitable for development and the 123-acre acre that will be preserved, the construction contractor will stake these areas in advance of construction to ensure construction equipment/development remains within the Proposed Action 50-acre Phase 1 cemetery development area and does not encroach into the 123-acre preservation area.

Operation. Operation of the Proposed Action would have a negligible adverse impact on geologic resources. The VA will maintain the buffer zones around the regulated geologic features to ensure that there are no additional impacts beyond those caused during construction. Operation would have no other processes or procedures that would require direct impacts to geology at the site.

3.4.3.1.2 Topography

Construction. The Proposed Action would have a direct, long-term, moderate but less-than-significant adverse impact on topography. Construction of the 50-acre Phase 1 cemetery will permanently alter the existing karst topography from rolling hills (including some solution trenches between elongated hills) in selected areas by grading and cut-and-fill to reduce steep slopes from approximately 12% to 5% to prepare these areas for infrastructure development (VAb, 2016). Development of the Phase 1 cemetery would require up to approximately 70,331 cubic yards of cut to fill; 48,343 cubic yards of cut to waste; and 1.326 million cubic yards of imported fill.

The VA has designed the Phase 1 cemetery roadway system and grading in concert with existing topography and to avoid steep slopes wherever possible. Steep hillsides will be retained where possible and considered for use as columbarium or other cemetery features, such as retaining walls. The design also avoids to the greatest extent practicable the need cross steep slopes to gain access to others portions of the site (VAb, 2016). Additionally, the Proposed Action would avoid development outside of the 50-acre Phase 1 cemetery development area and would also establish an on-site 123-acre preservation area where no development would occur.

Operation. Operation of the Proposed Action would have a negligible adverse impact on topography. The VA will maintain the vegetative cover on slopes to prevent erosion or other topographic impacts beyond those caused during construction. Operation will have no other processes or procedures that will require direct impacts to topography outside of the 50-acre Phase 1 cemetery area.

3.4.3.1.3 Soil

Construction. The Proposed Action would have direct, short-term, moderate but less-than-significant adverse impacts to soil. Soil erosion and sedimentation (E&S) impacts would be possible as the proposed building, parking areas, entrance road, and other Proposed Action components are constructed. Construction would remove vegetative cover, temporarily exposing the soil surface, and compact the soil within the 50-acre Phase 1 cemetery development area. Exposed soil would then be susceptible to erosion from wind and surface runoff. Exposure of the soils during construction has the potential to result in increased sedimentation of the on-site stormwater management systems, and the potential for off-site

discharges of sediment-laden runoff. Additionally, soil quality could be adversely impacted in the event of a release of petroleum-based fluids from construction equipment to the site soils.

However, such potential adverse E&S effects would be minimized through utilization of appropriate BMPs and adherence to the terms of an EPA-approved NPDES Construction Stormwater Permit including a site-specific Stormwater Pollution Prevention Plan (SWPPP) and Sediment and Erosion Control Plan (CES). The construction contractor would develop the NPDES/SWPPP/CES plans for EPA approval. The BMPs in the NPDES/SWPPP/CES plans for stormwater runoff and erosion management would include earthen berms, detention basins, vegetative buffers and filter strips, and construction equipment spill prevention and management techniques. Through submittal of these plans, the construction contractor would obtain all permits prior to construction, followed by implementing the BMPs through the construction period. The general BMPs are outlined below and along with additional specific management measures provided in Section 5:

- Install and monitor erosion-prevention measures (BMPs), such as silt fences and water breaks, detention basins, filter fences, sediment berms, interceptor ditches, straw bales, rip-rap, and/or other sediment control structures; re-spread stockpiled topsoil; and seed/re-vegetate areas temporarily cleared of vegetation.
- Retain on-site vegetation to the maximum extent possible.
- Plant and maintain soil-stabilizing native, non-invasive vegetation on disturbed areas.

Additionally, the Proposed Action would avoid development outside of the 50-acre Phase 1 cemetery development area and would also establish an on-site 123-acre preservation area where no development would occur.

Operation. Operation of the Proposed Action would have a negligible adverse impact on soil quality. No long-term soil erosion impacts would occur as a result of increased impervious surfaces on-site, as these effects would be minimized by maintaining the stormwater management system and vegetative cover on slopes to prevent erosion of the underlying soils. Excess soils excavated from in-ground burial plots will be staged in the maintenance area and covered to prevent erosion. Operation will have no other processes or procedures that would require or cause direct impacts to soil at the site. These and other minimization measures are presented in Section 5.

3.4.3.1.4 Prime Farmland

Construction and Operation. Construction and operation of the Proposed Action would have a negligible adverse impact on prime farmland. Development of the Phase 1 cemetery will permanently result in the loss of approximately 12 acres of prime farmland soils. Currently, this area of prime farmland is not in production and there are no plans to begin production. The loss of these 12 acres of prime farmland would not affect the agricultural practices elsewhere in Puerto Rico. Additionally, the loss of these 12 acres of prime farmland under the Proposed Action represents approximately 0.003% of the prime farmland in Puerto Rico (approximately 441,000 acres). Prior to publication of the Draft SEA, the VA solicited input from the NRCS, who is responsible for reviewing compliance with FPPA requirements. To date, the NRCS has not requested that the VA submit Form AD-1006, Farmland Conversion Impact Rating, to NRCS for their input and consultation. However, should NRCS request Form AD-1006, the VA anticipates that the loss of these 12 acres of prime farmland would result in a minimal NRCS Farmland Conversion Impact Rating.

3.4.4 No Action

Under the No Action Alternative, the Proposed Action would not be implemented and the Phase 1 cemetery would not be developed at the site. Although no impacts to geology, topography, or soils would occur

under the No Action Alternative, the on-site 123-acre preservation area would not be established (as it would under the Proposed Action).

3.5 Hydrology and Water Quality

3.5.1 Existing Environment

3.5.1.1 Surface waters

The Final PEA (VA, 2011) presented information on surface waters that remains unchanged for analysis in this SEA; therefore, that information is not repeated here. However, a brief summary of substantive new information about surface waters is provided in the following discussion. Additionally, a detailed discussion regarding wetlands at the site is presented under Section 3.9 in this SEA.

In August 2015, AECOM biologists conducted a site-specific investigation to evaluate surface waters at the site following guidance provided in the USACE Jurisdictional Determination Form Instruction Guidebook, joint U.S. Environmental Protection Agency (USEPA) and USACE guidance regarding Clean Water Act (CWA) jurisdiction after Rapanos, and joint guidance on identifying waters protected by CWA (USEPA-USACE 2007, 2008, 2011). AECOM reported these findings in the Wetland Delineation Report (AECOM, 2015) (a copy is included in Appendix A).

Based on the findings presented in the Wetland Delineation Report, AECOM delineated two streams at the site, (1) Fránquez Creek (approximately 3,202-linear feet) and (2) and an unnamed creek (approximately 1,300-linear feet) at the northern site boundary (see Figure 10). Fránquez Creek is a stream with a well-defined channel, which has an approximate width varying from 5- to 20-feet and is mostly covered with rocks. Fránquez Creek flows from south to north along the western limit of the property.

AECOM confirmed that Fránquez Creek, an intermittent water body, flows south to north and forms the western property boundary in the southern portion of the site., Fránquez Creek passes through the northwest portion of the site and then turns to the east after exiting the site, where, and approximately 600-meters downstream from the site, it confluences with Grande de Morovis creek (AECOM, 2015). Fránquez Creek is an intermittent water body and has moderate to very steep banks; in some places the top of bank and bottom of bank elevation difference reaches over 60 feet (18 meters). According to the USFWS National Wetland Inventory (NWI), Fránquez Creek has been identified as riverine wetland type, under the classification code R5UB (Riverine, Unknown Perennial, Unconsolidated Bottom). This creek has been previously impacted by the construction and operation of the PR-155 roadway and the existence of a relic road on the site. A crossing of 2-3 meters (8-10 feet) wide and two (2) meters (6-8 feet) long occurs within the Fránquez Creek by the existing roadway access at the southern end of the site. Debris and domestic garbage has been observed within the stream banks at PR-155 (VAb, 2016).

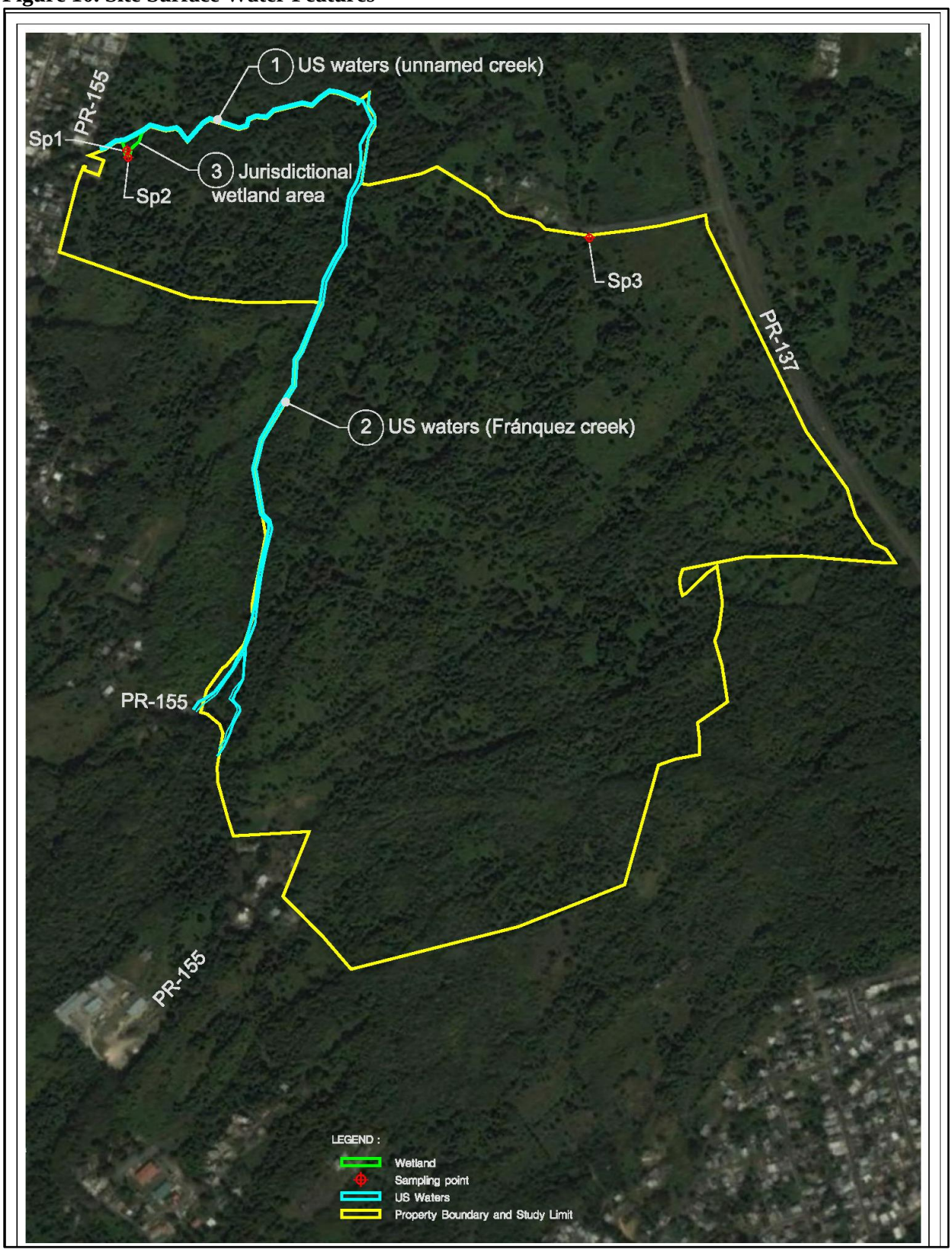
The unnamed creek located at the north boundary flows from west to east and is a tributary of Fránquez Creek (see Figure 10). This unnamed creek also has a well-defined channel.

On November 19, 2015, the VA submitted the Wetland Delineation Report (AECOM, 2015) with a request for a preliminary Jurisdictional Determination (JD) from the USACE Antilles Permits Section. On March 10, 2016, USACE approved the request and issued the preliminary JD, which indicated the approximate locations where the USACE agreed that the waters of the US and an approximately 0.05-acre wetland (delineated by AECOM) occurred at the site (a copy of the letter is provided in Appendix B). Through the preliminary JD, USACE considered the wetland and delineated surface water as jurisdictional waters of the US, and that a USACE permit would be needed if the Proposed Action impacted these resources. The VA signed the preliminary JD form and returned it to USACE on April 4, 2016. The design of the Proposed Action entirely avoids these jurisdictional areas. Accordingly, a USACE permit is not warranted.

Additionally, on February 8, 2017, USACE informed the VA that a request for USACE to issue a "No Permit Required" letter was discretionary; the VA has elected not to request the letter at this time.

Additionally, PRDNER requires a 5-meter regulatory buffer from the top-of-bank from surface water features including creeks, streams, rivers, lake and/or lagoons under Puerto Rico Law 1136 of 1976, which assigned PRDNER responsibility to protect and preserve surface water and groundwater. Likewise, Regulation 6213 (October 2000) enforces the objectives of both Law 1136 and Law 49 (January 2003), which under Article 2 requires also requires a 5-meter buffer zone adjacent to a water body for any urbanization project or land segregation (lotificación). Permitted activities include recreational (passive) uses that will not impede the stream flow and do not have any conflict with the conservation neither cleanup activities (flood control); structures such as culverts, bridges, and similar type of "stream crossing structures" can be placed within the 5-meter buffer.

Figure 10. Site Surface Water Features



3.5.1.2 Groundwater

The Final PEA (VA, 2011) presented information on groundwater that remains unchanged for analysis in this SEA; therefore, that information is not repeated here. However, a brief summary of substantive new information about groundwater presented in the geotechnical and hydrogeologic study investigations (GMTS, 2016) and the MP5 Project Narrative (VAb, 2016) is provided in the following discussion.

The site is located on the southern zone of the Karstic Platform of the North Coast of Puerto Rico, specifically on the Lares Formation (GMTS, 2016). The hydrogeologic unit of the Lares Limestone forms a superficial phreatic (unconfined) aquifer, while the San Sebastián Formation is considered a confining base level. The Cibao Formation, north of the site, overlies the Lares Limestone, and represents a confining top level of the Lares Limestone aquifer. The groundwater flow occurs through the secondary and tertiary permeability systems of the aquifer, formed by a heterogeneous combination of cavities, conduits, and fractures. The cavities and conduits develop as a result of the karstification process of the limestone, and form along preferential surfaces created by fracture planes and stratification contacts. However, the amount of groundwater flow in these conduits and cavities will depend on their evolutionary stage, interdependence, and degree of occlusion of the latter due to sedimentation (GMTS, 2016).

Based on the regional data from the USGS, the groundwater elevation in the area of the site varied from 125- to 150-meters amsl, with a hydraulic gradient in the east/northeast direction (GMTS, 2016). Additionally, during the site-specific geotechnical investigation, the groundwater elevation in four (4) observation wells and one boring installed at the site ranged from 131.8- to 144.1-meters amsl (GMTS, 2016). The depth to groundwater in the four observation wells was measured three times (July 25, 26 and August 4, 2016) and ranged from 6.57- to 8.74-meters bgs (GMTS, 2016).

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

3.5.2.1.1 Surface Water

Construction. The Proposed Action is anticipated to have no adverse impact on surface waters, which the VA considers to be jurisdictional per the preliminary JD. There would be no impact because the VA has designed the Proposed Action to entirely avoid development within 15-meters from the top of the bank of the unnamed creek and Fránquez Creek (VAb, 2016). The Proposed Action calls for a bridge crossing over the northern portion of Fránquez Creek, but the bridge abutments would be outside of the 15-meter buffer zone. The VA will design and construct the bridge over Fránquez Creek with an open bottom geometry, thereby avoiding environmental impact (i.e. discharge of dredged or fill materials) to the waterway (floodway) (VAb, 2016). The bridge will have the hydraulic capacity to accommodate a regional 100-year storm and the abutments would be located outside the 100-year floodplain and the 15-meter buffer zone. Apart from this bridge crossing, these surface water bodies will be encompassed within a 123-acre preservation area where all other development would be prohibited.

While construction of the Phase 1 cemetery has the potential to result in increased soil erosion and sedimentation of run-off, the VA will implement BMPs and management measures (as previously described for Soil under Section 3.4), specified in an EPA-approved NPDES/SWPPP/Sediment and Erosion Control (CES) plans, to further protect and minimize potential impacts to surface water quality. These management and minimization measures are reiterated in Section 5.

Operation. Operation of the Proposed Action would have a negligible indirect, long-term, less-than-adverse impact on surface water quality. The VA will maintain the stormwater management system and vegetative cover on slopes to prevent erosion of the underlying soils and avoid sedimentation of surface

water run-off into the jurisdictional surface waters. Additionally, the VA will maintain the 15-meter buffer zone to further minimize potential adverse impacts on the surface waters during operation of the Phase 1 cemetery, as well as during any potential future development phases. Operation will have no other processes or procedures that will require direct impacts to surface water at the site.

3.5.2.1.2 Groundwater

Construction. The Proposed Action is anticipated to have a negligible adverse impact on groundwater. The impact would be caused by creating approximately 13.73 acres of impervious surfaces, primarily comprised of the roadways (VAb, 2016). Additionally, construction will reduce the permeability of soils compared with the predevelopment condition of the site. The impervious surfaces and reduced soil permeability reduce the area and ability for rainwater and stormwater runoff to readily infiltrate into the ground and recharge the underlying aquifer.

To minimize this adverse impact, the Phase 1 cemetery will only occupy approximately 50-acres of the 124-acre area suitable for potential development. Additionally, VA would preserve the remaining 123-acres of the entire 247.5-acre site (no development would occur in that area). Furthermore, the VA has designed the Proposed Action to comply with the "Energy Independence and Security Act", approved by Congress in 2009 (EISA Section 438), which requires projects with an area exceeding 5,000 square feet to maintain or retain, to the maximum extent technically feasible, the hydrologic conditions present prior to the development of the project. Accordingly, the Proposed Action stormwater management plan utilizes a combination of natural features to direct and drain stormwater and runoff to the underlying aquifer via existing sink holes, caves, and depressions, as well as via a constructed stormwater retention pond, which will be used for irrigation water (the Proposed Action includes approximately 13 acres of irrigated land). This stormwater management system is designed to accommodate runoff volumes during a 100-year storm event (VAb, 2016).

Additionally, the construction contractor will implement spill and leak prevention and response procedures, including maintaining a complete spill kit at the construction area, to reduce the occurrence and impacts of potential incidental releases of vehicle fluids to soil and the underlying groundwater.

Operation. The operation of the Proposed Action is anticipated to have a negligible adverse impact on groundwater. This impact is due to the permanent reduction in pervious surfaces from the physical infrastructure constructed at the site. However, as previously described, the Proposed Action is designed to retain the pre-development hydrology to the maximum extent technically feasible, as required under EISA 438; this design will further minimize potential adverse impacts from post-development hydrology.

The adverse impact is also due to the use of groundwater resources during operation of the Phase 1 cemetery. Based on the MP5 Project Narrative (MP5, July 20, 2016), the Phase 1 cemetery would utilize up to approximately 72,000 gallons per day (equivalent to 6 million gallons annually) of water to irrigate approximately 13 acres of landscaped vegetation. The irrigation water will be primarily obtained through a combination of on-site rainwater harvesting into an approximately 1.2-acre stormwater retention pond (providing 6.3 days of storage), with backup from proposed on-site groundwater extraction wells to be located southwest of the retention pond with a drilled depth of approximately 300-feet bgs (GMTS, 2016; MP5, 2016). Based on the MP5 Project Narrative (VAb, 2016), groundwater wells are anticipated to produce approximately 20 gallons per minute (GPM) (VAb, 2016). Pumping 20 hours per day, a 20 GPM well can produce 24,000 gallons per day. Therefore, a minimum of three (3) wells would be required to provide the necessary backup water volume to the retention pond. These wells would be installed during ETO construction so sufficient irrigation water is available to establish and maintain vegetation in the ETO burial sections (VAb, 2016).

Therefore, utilization of groundwater would have a negligible adverse impact on the underlying aquifer, as this irrigation water would ultimately infiltrate back into the underlying aquifer. Additionally, residential areas would continue to obtain potable water from the Puerto Rico Aqueducts and Sewers Authority (PRASA), with no anticipated decrease in service levels.

The potential for modern burial practices to impact groundwater is also negligible. Based on standard modern burial practices, it is unlikely that embalming fluid or other decomposition products would be released into the soil and/or groundwater during operation of the National Cemetery. The standard NCA design incorporates (for full casket burials) subsurface concrete crypts, an entire section of which would be installed during site construction. Using this technique, the caskets are not buried directly in the soils, rather set in a pre-placed concrete crypt (established turf and soils temporarily removed crypt lid removed, casket placed, followed by the reverse process to complete). Additionally, modern embalming fluids are no longer arsenic-based. Lastly, as selection of either cremain interment or columbaria placement increase, the potential for soil or groundwater contamination commensurately decreases as no embalming fluids are used under these interment methods. The VA would also provide a "Green" burial section to accommodate a 'natural' method of interment.

The proposed crypt fields will utilize an adequate underdrainage system designed to keep water from reaching the inside of the lowest crypt. As a result, operation of crypt fields is not anticipated to encounter groundwater; therefore, no impact to groundwater quality is anticipated.

During operations, pesticide/herbicide applications (as part of routine maintenance activities) will be conducted to the minimum extent necessary and in accordance with manufacturer specifications, resulting in minimal impacts to groundwater resources. Additionally, the Proposed Action does not call for on-site bulk chemical or petroleum storage, which further avoids potential groundwater impacts.

3.5.2.2 No Action

Under the No Action, the National Cemetery would not be constructed. Therefore, no impacts to hydrology or water quality associated with the Proposed Action would occur. However, under the No Action Alternative, the 123-acre preservation area would not be established.

3.6 Wildlife and Habitat

3.6.1 Existing Environment

The region where the site is located is classified as a Subtropical Moist Forest zone. Approximately 58% of the total area of Puerto Rico and U.S. Virgin Islands is under this classification zone. This zone provides a much-needed supply of water on some of the drier islands, such as the Virgin Islands and Vieques. Most of the Subtropical Moist Forest zone in the study region has been deforested at one time or another. It has been subject to the highest demand in terms of the land use (e.g. agricultural) due to its ideal conditions for the establishment of a variety of crops. As the result, grasses have formed the dominant landscape of Subtropical Moist Forests for long periods of time.

A site-specific investigation of flora and fauna was performed in June-July 2015 by CSA (CSA, 2015). The investigation characterized biological and ecological resources at the site, focusing on the identification of predominant species and potential presence or absence of threatened and endangered species. A detailed description and the names of the most commonly observed species; a description of the recorded and observed species, and details of the flora and fauna throughout the property was provided in the *Flora and Fauna Study, July 31, 2015* (CSA, 2015). A copy of this report is provided in Appendix A. A brief summary of the findings is provided in the following discussion.

3.6.1.1 Habitat

Five (5) main vegetation associations (habitats) were identified at the site: pastureland and shrub areas, forestland, urbanized areas, riverine area, and suspected sinkhole areas (CSA, 2015). The site shows characteristics of previous impacts by different activities, including agriculture, cattle grazing and human use. Table 5 summarizes the area of each habitat at the site (from CSA, 2015).

Table 5. Five Main Vegetation Habitats at the 247.5-Acre Site

Habitats	Acres	Cuerdas	Percentage
Pastureland and shrub areas	46	47.4	19%
Forestland (relative dense hardwood areas)	183	188	74%
Urbanized area	2	2.1	1%
Riverine area (Fránquez creek)	2	2.1	1%
Suspected Sinkhole areas	14	14.4	5%
TOTAL	**247**	**254**	**100%**

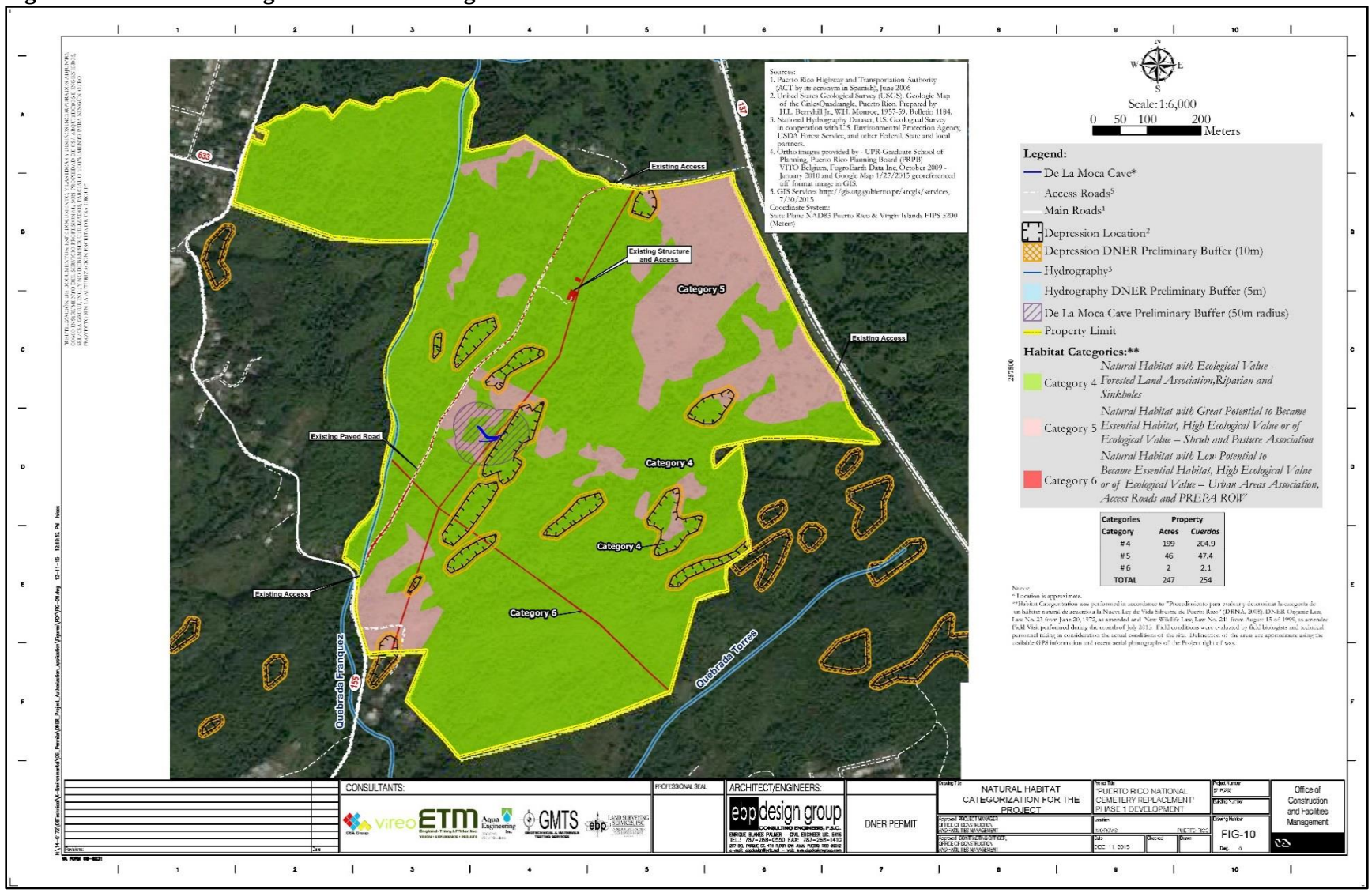
These habitats can be further grouped into three (3) main natural habitat categories designations, as per PRDNER Regulation No. 6765; and include:

1. **Category 4** (including forestland, riverine and sinkhole areas)
2. **Category 5** (Pastureland and shrub areas)
3. **Category 6** (Urbanized areas, internal access roads and PREPA ROWs)

Figure 11 depicts these PRDNER-designated habitat categories at the site (from CSA, 2015).

According to Regulation No. 6765, impacts over natural habitats Category 4 would requires a 1:1 compensation commitment, consisting on protecting habitat of the same or higher ecological value (e.g. land acquisition, conservation easement). However, under PRAPEC, for projects in the Restricted Karst Special Planning Area, PRDNER requires habitat compensation of the same or higher ecological value must occur in a 1:1 ratio based on the footprint of a proposed action, without limiting to a natural habitat designation of Category 4.

Figure 11. PRDNER-Designated Habitat Categories at the Site



3.6.1.2 Flora

Approximately 353 species of plants (91 families) were identified within the property; none of them are listed as protected or considered as species of special concern (CSA, 2015). Approximately 237 (67%) of the 353 recorded species were native, and 116 (33%) were exotics. The forestland areas mainly consisted of secondary type forests which is characteristic of lands that were previously modified. Table 6 summarizes the species per plant type observed at the site (from CSA, 2015):

Table 6. Observed Plant Species per Plant Type at the Site

Group	Number of Species
Herb	128
Tree	86
Shrub	49
Palm	3
Vine	36
Sedges	9
Parasitic Plants	1
Grasses	29
Fern	12
TOTAL	353

The most abundant shrub species observed included Guajava (*Psidium guajava*), Cariaquillo (*Lantana camara*), Mimosa (*Mimosa pigra*) and Higuillo limón (*Piper amalago*) (CSA, 2015). Some of the herbs and vines species commonly observed through the area include Man-better-man (*Achyranthes aspera*), Shepherd's needle (*Bidens alba*), Florida tasselflower (*Emilia fosbergii*), *Cleoserrata speciosa*, French weed (*Commelina elegans*), Wild balsam apple (*Mormodica charanthia*), *Merremia quinquefolia* and *Euphorbia heterophylla*, among others. Common trees species within the site include the African tulip (*Spathodea campanulata*), Moca (*Andira inermis*), Maria (*Calophyllum calaba*), Wild coffee (*Casearia guianensis*), Yagrumo (*Cecropia peltata*), Cupey (*Clusia rosea*), Cordia (*Cordia sulcata*), Guaraguao (*Cupania Americana*), Royal Poinciana (*Delinix regia*), Blackrodwood (*Eugenia biflora*), American muskwood (*Guarea guidonia*), Camasey blanco (*Miconia prasina*), West Indian balsa (*Ochroma pyramidale*), Corcho bobo (*Pisonia albida*), Rose apple (*Eugenia jambos*), White indigoberry (*Randia aculeata*), Malaysian Apple (*Syzygium malaccense*), Almond tree (*Terminalia cattappa*), Krekre (*Tetrazygia elaeagnoides*), Ceboruquillo (*Thouinia striata*), Jamaican nettletree (*Trema micrantha*), and Espino rubial (*Zanthoxylum martinicense*), among others (CSA, 2015).

All these species commonly occur within the northern lowlands of the Central Mountains range (*Cordillera Central)*, including areas were previous disturbances occurred (CSA, 2015).

The site does not possess a critical habitat designation by the USFWS (CSA, 2015). Based on the findings obtained from field studies, none of the species of flora identified within the property are listed as protected or considered as species of special concern by the PRDNER or the USFWS (CSA, 2015).

3.6.1.3 Fauna

The fauna survey identified approximately 73 vertebrate species, of which birds were the most common (CSA, 2015). Most common avian species observed were the cattle egrets (*Bubulcus ibis*), domestic pigeons (*Columba livia*), great egrets (*Ardea alba*), zenaida doves (*Zenaida aurita*), Puerto Rican orioles (*Icterus portoricensis*), shiny cowbirds (*Molothrus bonariensis*), and the gay kingbirds (*Tyrannus dominicensis*). Endemic bird species such as the Puerto Rican woodpecker (*Melanerpes portoricensis*) and the Puerto Rican emerald (*Chlorostilbon maugaeus*) were also observed. These species are common and widely distributed throughout Puerto Rico.

At the Fránquez creek, the Common gallinule (*Gallinula galeata*), and Black-necked stilt (*Himantopus mexicanus*) and various species of egrets were observed along the riverine area (CSA, 2015). Other migratory birds were observed flying through the area including the Osprey (*Pandion haliaetus*), Red-tailed hawk (*Buteo jamaicensis*), Killdeer (*Charadrius vociferous*) and Black-necked stilt (*Himantopus mexicanus*). Also, the Puerto Rican Boa (*Epicrates inornatus*) was the only federally and locally protected species observed near the Fránquez creek (CSA, 2015).

Some trogloxene species such as cockroaches (*Periplaneta americana*), cave crickets (*Ceuthophilus sp.)*, and *guabá* or whip spider (*Phrynus longipes*) were observed on the ceiling and walls of *De La Moca* cave. The presence of bats or guano was not detected at the cave during the June and July 2015 field investigation (CSA, 2015).

Table 7 summarizes the primary groups of fauna observed at the site (from CSA, 2015).

Table 7. Fauna Species Observed at the Site

Group	Endemics	Exotics	Migratory	Native	Total
Birds	5	8	7	31	51
Reptiles/Amphibians	9	3	0	3	15
Mammals	0	3	0	2	5
Fish	0	2	0	0	2
Total	**14**	**16**	**7**	**36**	**73**

In terms of fauna, the Puerto Rican Boa (*Epicrates inornatus*) was the only federally and locally protected species observed at the site (CSA, 2015). The species was observed near the Fránquez creek area (riparian area); however, this species may be present at other areas of the site (CSA, 2015).

3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

Construction. The Proposed Action would have a direct, long-term, less-than-significant adverse impact on habitat and wildlife. Approximately 50-acres of habitat will be cleared during construction of the Phase 1 cemetery, causing displacement of local fauna associated with the forestlands, shrublands, and pasture areas. However, based on the flora and fauna survey, no impacts to protected plant species are anticipated because no protected plant species were observed at the site (CSA, 2015).

The impacts associated with the Proposed Action would be further minimized by creating a 123-acre preservation area, as well as implementing off-site compensation commitments specified in the PRAPEC Special Authorization Determination issued by PRDNER on June 1, 2016 (a copy of the letter with commitments is provided Appendix B). It is also noted that while the Proposed Action would only impact approximately 50-acres of the 124-acre suitable development area, the off-site compensation commitments to be implemented under the Proposed Action also account for potential future development elsewhere within the 124-acre area.

The Proposed Action also includes the establishment of a 15-meter buffer zone from the top of bank at Fránquez Creek, where a Puerto Rican Boa previously had been observed (CSA, 2015). However, because the Puerto Rican Boa may be present elsewhere at the site, the VA will implement the USFWS/PRDNER Protection Protocol for the Puerto Rico Boa during construction of and within the 50-acre Phase 1 cemetery area under the Proposed Action. This will involve continued coordination among the VA, USFWS, and PRDNER, and implementing the following activities prior to any construction activities, including earth and vegetation removal (as stated in Boa Protection Protocol from Appendix 2 in CSA, 2015):

1. A site meeting shall be held with the VA's resident engineer, contractor, subcontractors, management personnel and construction workers associated with the Proposed Action, in which biologists from the PRDNER, USFWS, or any authorized expert on this matter will discuss the biology, importance, habitat, legal status, and consequences of harming or taking the Puerto Rican Boa.
2. A field biologist responsible for surveying for the presence of the Puerto Rican Boa shall be present during initial clearing of the 50-acre Phase 1 cemetery development area. Following initial clearing, the field biologist would only be on-call and would mobilize to the site in the event that a Puerto Rican Boa is encountered and required removal. As needed, the field biologist shall request a PRDNER Collection Permit.
3. The resident engineer, in coordination with the field biologist will be responsible to implement the procedures in the event that an individual of this species is found. The biologist will be available for each working shift during land clearing operations.
4. The survey must be scheduled according to the contractor's plan. Daily changes in these work plans shall be taken into account for planning the surveys and protection protocol. The field biologist, in coordination with the resident engineer, shall evaluate the proposed area prior to clearing to determine the amount of time required for the field inspection. Surveys shall be conducted early in the morning, prior to the use of machinery in the area. The machinery shall also be closely inspected for the presence of boas. The methodology to be implemented for the Puerto Rican Boa surveys at the Proposed Action site must be as follows:
    - The designated biologist and/or other authorized personnel shall conduct surveys early in the morning, prior to the use of machinery in the area. Special attention or effort must be dedicated within the areas where machinery, equipment or vehicles will be working.
    - Boas must be searched on the canopy, stems, trees and palms axils, understory vegetation, ground, roads and trails, crevices in rocks and wood, under rocks and woody debris and within any old structures.

Boas must be also searched within the machinery, heavy equipment and vehicles that stay overnight in the construction area. The VA will also implement the following additional management measures to further minimize impacts to habitat and wildlife, as originally presented in the VA's *PRDNER Karstic Physiography Authorization Application,* dated March 18, 2016, and summarized below:

1. Flag and place a fence along or around any sensitive areas encompassed by the 50-acre Phase 1 cemetery development area to protect the habitat of the species and to delineate the construction limit. Also, signs will be posted to preclude construction activities from taking place in these sensitive areas encompassed by the Phase 1 cemetery development.
2. A Field Biologist designated by VA will be onsite during earthwork activities. The Field Biologist will ensure that protection methods are implemented to ensure that construction does not take place outside of the 50-acre Phase 1 development area or within the designated 123-acre preservation area on-site. During Proposed Action construction, protection measures will be implemented throughout the duration of the activities. Moreover, environmental monitoring plans will be implemented for the flora and fauna, which will be prepared and performed by qualified and experienced professionals.
3. Any required clearing and grubbing will be performed in such a manner as to minimize damage to existing flora and fauna adjacent to the Proposed Action boundary. As necessary, the construction contractor will be instructed to avoid construction work in the designated preservation areas. All monuments and markers will be protected in the same manner before beginning operations around them.
4. Implement the reforestation plan, which includes planting approximately 3,000 native, non-invasive trees at the site. Any trees located outside of Proposed Action construction area that are scarred or damaged will be restored to its original condition or properly removed and relocated.

5. Additional construction protection measures and BMPs will be maintained within the work zones for the duration of construction activities within the specific work areas. These include:
    - All construction debris, refuse, discarded containers, and any other waste materials will be stored in a designated construction debris area, outside of buffer zones, karst features, and in upland areas.
    - Fences of UV stabilized, safety orange fabric woven from polypropylene yarns, will be installed as necessary to prevent impact to sensitive habitats and features. Features that require buffer zones will be fenced at the perimeter of the buffer zone utilizing orange safety and/or silt fencing, as appropriate.
    - Any fill, excess, and/or excavated material (among others) will not be deposited within the dripping zone of trees (under not authorization to be impacted). Also, remaining tree's dripping zone will be free of construction equipment and vehicles.
    - No temporary and/or permanent construction activities (e.g., access road, staging areas, etc.) will be allowed in any non-authorized forested (tree patches or "tree islands") / grassland areas and/or any natural areas defined as those areas outside of the Phase 1 cemetery development area limits.
    - Staging areas and access roads will be designated prior to any construction activity.
    - All personnel working on the site will be trained with BMPs to minimize impacts to the maximum extent.
    - BMPs for earth movement practices will be implemented and maintained at all times during construction, including erosion controls. Therefore, prior to commencement of any authorized work, Phase 1 cemetery development area limits will be marked in the field. Perimeter of forested areas and group of trees to remain will be protected with a safety orange fabric woven fence or silt fence during all construction activities. Any other location will be protected as needed. The fencing and/or other markers will remain in place and be properly maintained and replaced until construction is completed.
    - Mechanical injuries to tree species and forested areas outside the Phase 1 cemetery development area limits or to remain within Phase 1 cemetery development area footprint will be avoided at all times during construction activities.
    - Staging areas for crew, equipment and materials will be established well away from karst features such as caves, sinkholes and springs, and highly erodible soils when practical.
    - Buffer zones located down slope of construction areas will be physically screened with sediment controls, such as silt fences or filter strips. Sediment controls will be monitored after rain and maintained for the duration of the Proposed Action. Additional buffer zone requirements include:
        - If needed, all buffer zones disturbed by the Proposed Action will be re-vegetated immediately following or concurrent with Proposed Action implementation. Native trees, shrubs and grasses could be planted to ensure long-term stability in areas where the soil erosion threat is not critical. Annual non-native grasses (non-invasive) may be planted in conjunction with native species to provide short-term erosion control. Areas judged to be subject to immediate soil loss due to steep slopes or other factors causing critical erosion conditions could be planted to assure rapid establishment and erosion control.
        - An evaluation of vegetation establishment will be conducted at one-month intervals for at least three months after completion of the Proposed Action. Any recommended sediment controls will be inspected at these times. If determined beneficial to soil stability and not adversely impacting site function and/or aesthetics, recommended sediment controls should remain permanent.

Operation. The operation of the Proposed Action would have a negligible adverse impact on habitat and wildlife. Although construction will result in the loss of habitat within the 50-acre area Phase 1 cemetery area, no other portion of the 124-acre area suitable for development would be developed under the Proposed Action. Additionally, during operation of the Phase 1 cemetery, the VA would maintain all landscaped grounds and the surface water retention pond; both may serve as habitat for common animals. Furthermore, the aforementioned PRDNER-required off-site compensation commitments would have been implemented, and the 123-acre preservation area established on-site would be maintained.

Operation of the Proposed Action does not include plans for further habitat loss or creation beyond the Phase 1 cemetery. Accordingly, the remainder of the site will not be developed as part of the Proposed Action. Therefore, impacts to wildlife and habitat during operation of the Proposed Action are expected to remain at negligible adverse levels.

3.6.2.2 No Action

Under the No Action, the National Cemetery would not be constructed. Therefore, no impacts to wildlife or habitat would result. None of the off-site compensation measures will be implemented.

3.7 Noise

3.7.1 Existing Environment

The existing noise environment in vicinity of the site is dominated by vehicle traffic along PR-137 and PR-155. No other notable noise-generating sources are present in the immediate vicinity of the site. As such, the site's noise environment can be characterized as that typical of a rural area. Morovis does not have a general noise ordinance. Sensitive noise receptors can include residences, schools, hospitals, parks, religious facilities, cemeteries, and libraries. The location of these receptors in vicinity of the site was previously described in Section 1.3.

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

Construction. Construction activities under the Proposed Action would result in direct, short-term, less-than-significant adverse noise impacts on sensitive receptors, primarily to the nearby residences. Sources of noise would include construction equipment (including land clearing and grading equipment, trucks importing soil fill, removing excess soils and construction debris, and road construction and paving equipment) and other contractor vehicles commuting to and from the site.

To minimize these impacts, construction will take place during daylight hours, unless there is a specific construction activity that would directly impact the operation of the ETO phase of the cemetery. Construction vehicles would be equipped with noise-dampening equipment operated according to the manufacturers' instructions. Construction vehicles would be turned off when not in use. Construction activities performed after ETO would be scheduled to minimize impacts to interment ceremonies to the extent possible. These construction noise minimization practices that will be implemented are reiterated in Section 5.

Operation. During operation of the Proposed Action, there would be direct, long-term, less-than-significant adverse noise impacts due to routine cemetery maintenance activities and committal services. Sources of operational-related grounds maintenance equipment include mowers, leaf blowers, and small vehicles. These operational-related noise sources are similar to common commercial landscaping activities. The operational maintenance activities would occur on an approximately weekly basis, and would occur during daylight hours. Additionally, these operational maintenance activities are similar to those performed

at other National Cemeteries; no noise complaints from neighboring residents at other facilities have been received.

Additional operation noise would be generated from M-16 rifle salutes during Veterans' interment ceremonies. The VA anticipates that an average of 5 to 8 interment ceremonies will be performed daily of which approximately 60 percent are for Veterans and are accompanied with a rifle salute (resulting in an approximate average of six rifle salutes performed daily). Rifle salutes typically consist of three to five rifles. The A-weighted maximum levels (Lmax dBA) for M-16 blanks from rifle salutes at various distances and angles from a source (e.g. Phase 1 committal shelters) is provided in Table 8 (VA, 2014b). These sound levels correspond to firing directly (0 degrees) or at different angles to the receptor, and do not account for sound shielding from tree lines, berms, and other buffers; thus, actual sound levels are expected to be lower than those shown. For comparison purposes, speech ranges from 50 to 80 dBA. Additionally, the shortest distance between a Phase 1 Committal Shelter (Committal Shelter No. 1) and the nearest residence (adjacent to the site's northern border) is approximately 300 meters, while the residences along the western boundary are approximately 650 meters away. As such, noise from ceremonial rifle salutes is anticipated to be a minor contributor to overall sound levels at these receptors.

Table 8. Azimuth Predicted Noise Levels from Rifle Salutes

Distance from Source	A-Weighted Maximum Sound Level (Lmax, dBA), Degrees from Source		
Meters	0°	90°	180°
50	66-76	64-74	64-74
100	60-70	58-68	58-68
200	53-63	51-61	51-61
400	39-49	38-48	38-48
800	31-41	30-40	30-40
1600	21-31	20-30	20-30

With the exception of the residences neighboring the site, other noise-sensitive receptors would not be affected due to their distance from the Proposed Action committal shelters.

These short- and long-term, direct, less-than-significant adverse noise impacts will be further minimized through construction scheduling and interment service planning. These minimization opportunities are reiterated in Section 5.

3.7.3 No Action

Under No Action, development of the proposed Puerto Rico National Cemetery Replacement would not occur, and no noise impacts would result.

3.8 Land Use

3.8.1 Existing Environment

The Final PEA (VA, 2011) included a description of regional and site-specific land use information that remains unchanged for analysis in the SEA, and therefore that information is not repeated here. Substantive new site-specific land us information is presented below.

Based on consultation with other Federal, Commonwealth, and local stakeholders, and consideration of sensitive environmental resources at the site, the VA determined that approximately 124 acres within the 247.5-acre site were suitable for development. Furthermore, the VA designed the Phase 1 cemetery under this Proposed Action to occur within a 50-acre area located within the boundary of the 124-acre suitable

development area. The remaining 123-acre area at the site would be preserved in perpetuity (i.e. no development would be permitted).

According to the Zoning Map of Morovis (*Plano de Calificación*) dated October 1, 2010 (Sheets 13, 14 and 15), the site is currently zoned Residential 3 (R-3) under Urban Land (SU, *Suelo Urbano*), and Residential 0 (R-0), under Common Rustic Zone (SRC, *Suelo Rústico Común*). Based on the land use maps, the proposed use of the site as a cemetery is consistent with the zoning of the surrounding areas.

It is also noted that the Puerto Rico Planning Board (PRPB), through the Joint Regulation, regulates the land use by means of zoning districts. However, according to the Joint Regulation (Chapter 3, Section 3.4 Applicability), dated March 24, 2015, this regulation does not apply to any improvement or public acquisition otherwise authorized or undertaken exclusively by the government of the United States of America, such as the Proposed Action.

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

Construction and Operation. Construction and operation of the Proposed Action would have a negligible adverse impact on land use at the site, and no impact on the adjacent land areas. The Proposed Action impact would result from converting the site from unmanaged forest and pasture into a National Shrine to benefit Veterans. However, the loss of approximately 0.003% of available agricultural farmland would have a negligible impact, as previously described in Section 3.4. Additionally, the Proposed Action would only develop approximately 50 acres within 124-acre area suitable for development within the entire 247.5-acre site. The remaining 123-acres at the site would be established as a preservation area. As previously described, the VA would complete separate NEPA analyses prior to any potential future development phases within the 124-acre area.,

As is the case at all National Cemeteries, the property will be reserved for public use only for Veterans' funeral services, visitation, and occasional ceremonies. No recreational use will be permitted.

The Proposed Action would have no impact on land use designations at the site or prevent use of areas adjacent to the site. The NCA Facilities Design Guide, as well as on the operation and maintenance protocols implemented by VA, establishes that the edges of burial sections shall be a minimum of six meters (20 feet) from property boundaries or fence lines. The Proposed Action incorporates this requirement (VAb, 2016).

Additionally, the VA would implement the off-site compensation commitments required by the PRDNER under the PRAPEC regulation, as specified in the PRDNER Special Authorization Determination letter dated June 1, 2016.

Furthermore, the VA will establish and maintain a buffer zone with a minimum of six meters (20 feet) between property boundaries or fence lines and residential abutters.

As a result, the Proposed Action would have a negligible adverse impact on land use at the site, and would have no impact on land uses outside of and beyond the site.

3.8.2.2 No Action

Under No Action, the cemetery would not be developed, and no land use impacts at the site would occur. However, the 123-acre on-site preservation area would not be established, and off-site conservation commitments would not be implemented.

3.9 Floodplains, Wetlands, and Coastal Zone Management

3.9.1 Existing Environment

3.9.1.1 Floodplains

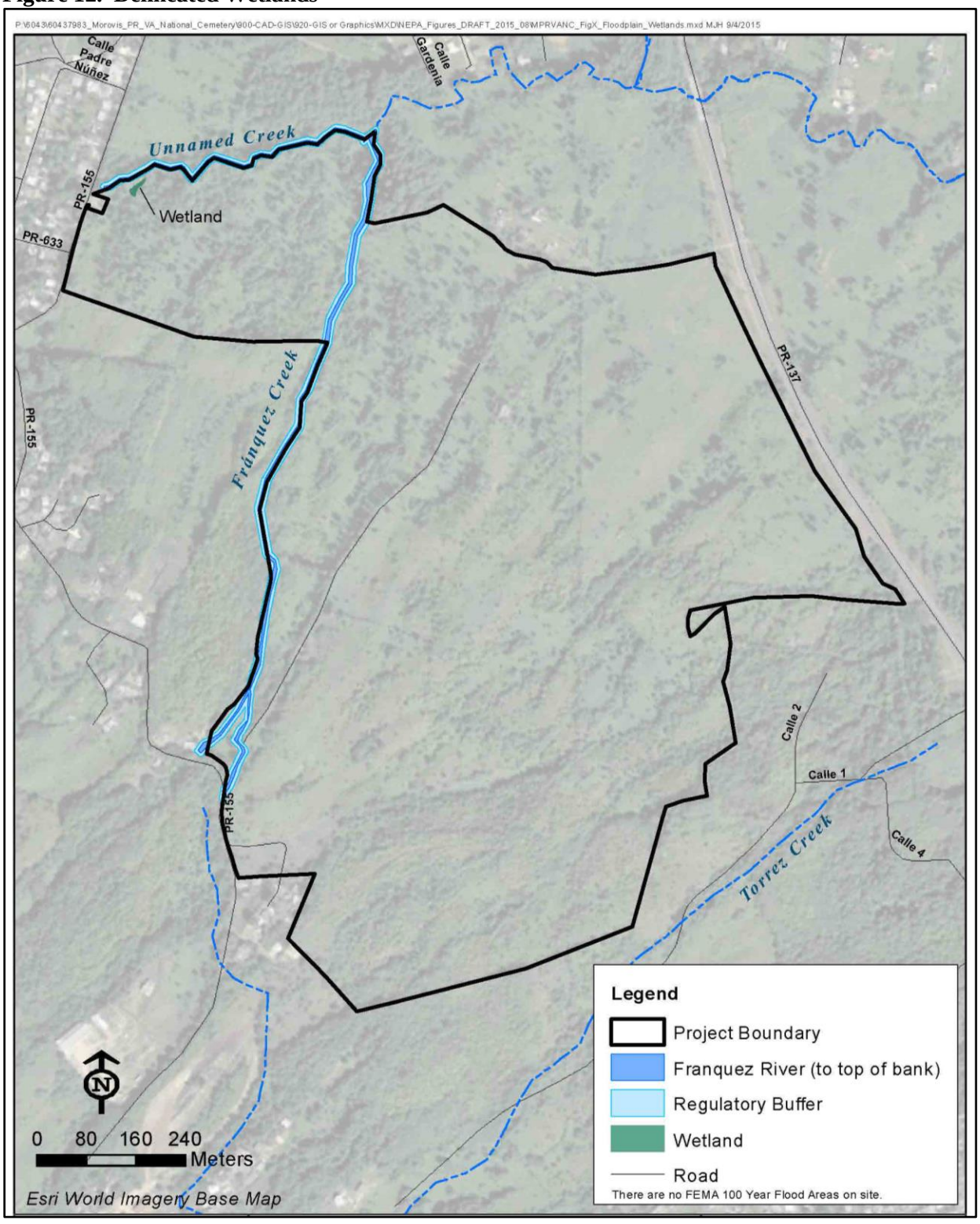
According to the information available from Federal Emergency Management Agency (FEMA), Flood Insurance Rate Maps (FIRMS) (Panel 72000C0660H), dated April 19, 2005, the entire 247.5-acre site is located in Zone X, which is outside 100-year flood zone.

3.9.1.2 Wetlands

According to the USFWS National Wetland Inventory (NWI) the Fránquez Creek has been identified as riverine wetland type, under the classification code R5UB (Riverine, Unknown Perennial, Unconsolidated Bottom).

One wetland was identified and delineated during AECOM's wetland delineation survey in August 2015 (AECOM, 2015). The wetland is located in the northwest portion of the site, abutting the unnamed creek (see Figure 12). The wetland is approximately 0.05 acres and falls under the jurisdiction of the USACE. As previously described under Section 3.5, this wetland was included in the preliminary JD issued by USACE on March 10, 2016. Additional discussion about regulated surface waters is provided in Section 3.5 in this SEA.

Figure 12. Delineated Wetlands



3.9.1.3 Coastal Zone Management

The Coastal Zone Management Act (CZMA) was promulgated to control nonpoint pollution sources that affect coastal water quality. The CZMA of 1990, as amended (16 USC 1451 et seq.) encourages States to preserve, protect, develop, and where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife using those habitats.

Puerto Rico's coastal zone generally extends 1,000-meters inland from the coast, but extends farther in areas to include important coastal resources (PRDNER, 2010). The site is not included in a designated coastal management zone (PRDNER, 2010).

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

Construction. The Proposed Action would have no impact on floodplains or coastal zone management. The site is not located within a designated 100-year or 500-year floodplain, therefore no impacts to floodplains can be expected under the Proposed Action. Additionally, the site is not within a designated coastal management zone, therefore no impacts to coastal zones can be expected under the Proposed Action.

Construction of the Proposed Action is anticipated to have no adverse impact to wetlands. There would be no impact because the design of the Proposed Action entirely avoids development of the wetland and establishes a 15-meter buffer around the wetland where development is prohibited. Additionally, and as previously described under Sections 3.4 and 3.5 in this SEA, the VA will implement BMPs to further minimize construction-related soil erosion and sedimentation of run-off to prevent sediment-laden run-off from reaching the wetland.

Operation. Operation of the Proposed Action would have no impact on the wetland, as there is no operational process or procedure that requires directly or indirectly impacting the wetland through development, fill, or dredging. Furthermore, the VA will maintain the 15-meter buffer zone to avoid development near the wetland and to ensure that no impacts occur.

3.9.2.2 No Action

Under the No Action Alternative, no impact to floodplains or coastal zone management areas would occur, as these areas are not present at the site. Under the No Action Alternative, no impacts to wetlands would occur. However, should the site ultimately be developed by others, impacts to wetlands could occur.

3.10 Socioeconomics

The following paragraphs update the summary socioeconomic data provided in the Final PEA (VA, 2011), which was based on available census data from 2000 and 2010.

3.10.1 Existing Conditions

The following information updates the summary socioeconomic data presented in the Final PEA (VA, 2011), which at the time was based on available census data from 2010.

The site is located within the Municipality of Morovis, Puerto Rico. The estimated population in Morovis was 32,610 in 2010, and 32,194 in 2014 (US Census Bureau, 2015) (see Table 9). The estimated population total for Puerto Rico in 2000 was 3,808,610, and decreased to 3,548,397 by 2014.

Table 9. Annual Estimates of the Resident Population: 2010 to 2014

Geography	April 1, 2010		Population Estimate (as of July 1, 2014)			
	Census	Estimates Base	2011	2012	2013	2014
Puerto Rico	3,725,789	3,726,157	3,686,771	3,642,281	3,595,839	3,548,397
Municipality of Morovis	32,610	32,610	32,652	32,544	32,379	32,194

Source: U.S. Census Bureau, Population Division, 2015
Release Dates: For the United States, regions, divisions, states, and Puerto Rico Commonwealth, December 2014. For counties, municipios, metropolitan statistical areas, micropolitan statistical areas, metropolitan divisions, and combined statistical areas, March 2015. For Cities and Towns (Incorporated Places and Minor Civil Divisions), May 2015.

According to the 2014 US Census data, the Municipality of Morovis had a relatively lower percentage of high school graduates than Puerto Rico as a whole and a lower percentage of bachelor's degrees or higher than Puerto Rico. Educational attainment data are presented in Table 10.

Table 10. Estimates of Educational Attainment

Educational Attainment Estimate 2014	Municipality of Morovis	Puerto Rico
High School Graduate (%)	63.7	71.9
Bachelor's degree or higher (%)	15.0	23.6

According to the 2014 US Census data, the Municipality of Morovis had a lower percentage of Veterans among the entire population compared to Puerto Rico (Table 11).

Table 11. Veteran Population

Veterans (2014)	Municipality of Morovis	Puerto Rico
Population	476	101,049
Percentage (%)	2.1	3.8

The Municipality of Morovis' employment is primarily centered on educational services, health care, and social assistance (24.3%); retail trade (18.5%); manufacturing (13.8%); and public administration (12%).

Unemployment rates for the Municipality of Morovis are higher than Puerto Rico (Table 12). Median household income for the Municipality of Morovis is slightly lower than Puerto Rico.

Table 12. Income and Unemployment Data

Area	Total Labor Force (16 years and over)	Median Household Income	Unemployment Rate (% of population 16 years and over in labor force)
Puerto Rico	1,300,338	$19,350	18.1
Municipality of Morovis	10,274	$$16,536	24.7

Rates of owner-occupied housing in the Municipality of Morovis are slightly higher than Puerto Rico (Table 13). This is likely reflective of the large, rural, and suburban areas of Morovis compared with urban areas throughout Puerto Rico.

Table 13. Housing Data

Area	Total Housing Units	Owner Occupied (%)	Median Value	Median Contract Rent
Puerto Rico	1,553,611	69.5	$121,700	$462
Municipality of Morovis	11,533	75.3	$97,300	$455

Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, was introduced in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children and to ensure that Federal agencies' policies, programs, activities, and standards address environmental risks and safety risks to children. This section identifies the distribution of children and locations where numbers of children may be proportionally high (e.g., schools, childcare centers, family housing, etc.) in areas potentially affection by the Proposed Action. Children are not regularly present at the site, which was largely formerly farmland. Children are present in the surrounding residential areas. The percentage of the population under age 18 in the Municipality of Morovis is similar to Puerto Rico (Table 14).

Table 14. Adolescent Population Data

Area	Under 18 (population)	Under 18 (%)
Puerto Rico	834,727	22.4
Municipality of Morovis	8,429	25.8

3.10.1.1 Proposed Action

Construction. Construction of the Proposed Action is anticipated to take 30 months, starting in the fall of 2017 and ending in the summer of 2020. Construction will require hiring qualified and skilled workers. Construction supplies would be sourced from the local or regional area, as available. Accordingly, construction of the Proposed Action would temporarily increase local employment opportunities and local tax revenue through the purchase of supplies and from spending on personal items by construction workers. As a result, construction of the Proposed Action would have a direct, short-term, moderate but less-than-significant beneficial impact on socioeconomics.

Operation. Operation of the Proposed Action would require hiring approximately 11 new staff to maintain the Phase 1 cemetery (MP5, April 26, 2016). Preference would be given to qualified Veterans in the local or regional area, as available. This long-term addition in employment opportunity would have a long-term, but minor and less-than-significant beneficial impact on socioeconomics. The influx of visitors to the National Cemetery may result in increased personal spending at local area businesses, resulting in a potential long-term, moderate but less-than-significant beneficial socioeconomic impact.

Overall, the Proposed Action would cause no changes to the area population, income levels, education, housing, or protection of children, and therefore would have no significant adverse impact on socioeconomics.

3.10.1.2 No Action

Under No Action, the cemetery would not be constructed. This would cause a short- and long-term, less-than-significant adverse impact, as there would be no increase in construction and visitor spending or employment opportunities otherwise associated with the Proposed Action.

3.11 Community Services

3.11.1 Existing Conditions

As previously described in the SEA Introduction, the Puerto Rico National Cemetery in Bayamon will reach full capacity for in-ground interment by 2022 and columbarium by 2030. At that point, Puerto Rico will lack available Veterans' burial services, requiring Veterans' and their family members to travel to the US mainland to obtain burial opportunities at a National Cemetery.

Other community services include police protection, fire protection, emergency services, schools, health care, and parks and recreation. Because no additional load is expected to be placed on the fire or police departments, and changes are not expected in use of or access to other public or community services as a result of the Proposed Action, impacts to community services other than Veterans' burial opportunities were not analyzed in this SEA. Additionally, the description of existing community services and conclusions presented in the Final PEA (VA, 2011) remains unchanged, and as such are incorporated into this SEA.

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

Construction and Operation. Construction and subsequent operation of the Proposed Action would have a beneficial impact on community services (burial services). During operation of the Proposed Action, the Phase 1 cemetery would allow the NCA to provide burial services to Veterans' and their families in the Puerto Rico for at least the next 10 years, filling the previously described void. Therefore, operation of the Proposed Action would provide a long-term, beneficial impact on this community service.

3.11.2.2 No Action

The No Action Alternative would have a direct, long-term, significantly adverse impact on Veterans' burial opportunities, as the Proposed Action would not be implemented. Accordingly, once the existing Puerto Rico National Cemetery in Bayamon reaches full in-ground interment capacity in 2022 and columbarium capacity in 2030, Veterans who have earned the privilege of burial in a National Cemetery would not be able to exercise this benefit in Puerto Rico. Instead, Veterans and families and visitors would have to travel to another National Cemetery located on the US mainland. This would result in a significantly adverse burden on these Veterans, their families, and visitors.

3.12 Solid and Hazardous Materials

3.12.1 Existing Conditions

The Final PEA (VA, 2011) provided an analysis of solid and hazardous materials and concluded that acquiring the site and proposed construction and operation of a National Cemetery would have no significant adverse impact on the environment. The Final PEA conclusion remains unchanged based on site-specific details for the Proposed Action analyzed in this SEA.

However, new information obtained regarding Asbestos Containing Material (ACM) and Lead Base Paint (LBP) at the existing abandoned site structures was obtained after the Final PEA was completed. As

described in the MP5 Project Narrative (MP5, July 20, 2016), analytical testing of samples collected from the site structures confirmed the presence of ACM and LBP.

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

Construction. Prior to demolition of the site structures, the VA will abate ACM and LBP according to Federal and Commonwealth regulations. Abatement and demolition have the potential to cause direct, short-term, adverse impacts to the environment if not performed properly. To minimize this potential impact, the VA will hire qualified contractors to perform the work and ensure the abated materials are disposed of in accordance with all federal, Commonwealth and local regulations.

Other construction-related activities under the Proposed Action have the potential to generate solid waste. However, solid waste generated during construction is anticipated to be a minor contributor to overall solid waste generated in the region and would not result in adverse impacts. Excavated soils would be reutilized on-site to the maximum extent possible and in accordance with site-specific design specifications. Excess soils could also be reutilized off-site, if warranted. Excess construction debris, such as wood and metal scraps, would be recycled by the construction contractor to the maximum extent practicable. Staging and operation of construction equipment carries an increased potential for incidental releases of vehicle fluids. Proper vehicle maintenance and inspection would reduce this potential, and adverse impacts are not anticipated. Furthermore, the construction contractor would implement the BMPs specified in the SWPPP to ensure that any incidental releases of vehicle fluids do not migrate to preservation areas on- or off-site.

Therefore, construction of the Proposed Action would have a less-than-significant adverse impact on solid and hazardous materials.

Operation. Operation of the Proposed Action would have a negligible adverse impact on solid waste and hazardous materials. Operation of the Proposed Action would generate a consistent, but limited quantity and type of solid waste on a routine basis. Based on the VA's experience operating similar National Cemeteries, solid waste generally consists of routine office waste, flowers and other items left behind at burial sites, and container waste associated with minor vehicle maintenance activities. Solid waste would be collected weekly in designated on-site dumpsters and transferred by a VA contractor to an appropriate municipal solid waste landfill for disposal or recycling.

Minimal quantities of hazardous materials would be stored at the Phase 1 cemetery. Typically, hazardous materials are brought onsite by contractors on an as-needed basis for activities such as pest control and weed management. Small volumes of excess soils would be generated from routine burial operations. These soils would be reutilized onsite where possible. Small volume storage of excess soils would not be visible from areas outside of the National Cemetery or areas normally accessed by cemetery visitors (i.e. excess soils would be stored near the proposed maintenance area in the northern area of the Phase 1 cemetery).

Anticipated future solid and hazardous waste generation would be a minor contributor to overall solid waste generation in the area and would not result in significant adverse impacts associated with solid or hazardous waste quantities or management.

3.12.2.2 No Action

Under No Action, the Proposed Action would not be implemented. and no impacts to solid waste and hazardous materials would result. However, the existing structures would not be demolished and therefore the ACM and LBP in these structures would remain unabated. This would result in a potential long-term,

direct, less-than-significant adverse impact should these materials be released to the environment as the structures continue to deteriorate on site.

3.13 Transportation and Parking

3.13.1 Existing Conditions

Access to the site is available directly from State Roads PR-137 and PR-155 (VAb, 2016). PR-137 and PR-155 are generally North-South oriented, two-lane paved roads in the site vicinity with a current estimated Level of Service (LOS) rating of B. Traffic for Morovis and the site are regulated by the Puerto Rico Highway and Transportation Authority (PRHTA). Under current conditions, both PR-137 and PR-155 operate at or above acceptable LOS ratings mainly due to the lack of development in the site vicinity (VAb, 2016).

3.13.2 Environmental Consequences

3.13.2.1 Proposed Action

As part of the earlier PEA process, the VA had submitted the Draft PEA to the PRHTA in February 2011 (VA, 2011). In a response letter dated March 11, 2011, the PRHTA stated that no highway projects are currently proposed in the vicinity of the site. However, the PRHTA indicated that the PRHTA Construction Improvement Program is a dynamic program that changes frequently based on need. The PRHTA stated that renewed/additional consultation with the VA would be required, should the VA elect to purchase the site for development as a National Cemetery.

Accordingly, following the VA's purchase of the site in March 2013, the VA completed additional consultation with PRHTA regarding the proposed alignment of the National Cemetery entrances and exits. PRHTA initially indicated that the main access to the National Cemetery should occur through PR-155, a more rural and indirect route than PR-137 (VAb, 2016). In response, the VA completed a site-specific traffic impact study, which concluded that locating the main entrance on PR-137 was safer and more suitable than PR-155, along with a separate "special events" exit located south of the main entrance on PR-137, and a separate service/maintenance entrance/exit along PR-155 (Vagtec, 2016). The VA submitted this information as part of a reconsideration letter to the PRHTA, requesting that PRHTA authorize the VA's proposed entrance/exit alignments. The PRHTA and Federal Highway Administration (FHWA) have verbally approved the VA's proposed alignments; VA anticipates receiving a formal approval letter shortly.

Construction. Construction of the Proposed Action would have a direct, short-term, less-than-significant adverse impact on transportation, and no impact on parking. During the approximately 30-month construction period, increased traffic would consist of construction workers' personal vehicles, construction equipment mobilization and demobilization, and haul trucks importing fill to the site or exporting excess cut soils off-site. Based on the MP5 for the Phase 1 National Cemetery, up to approximately 1.3 million cubic yards of fill would be imported to the site from an off-site borrow source. This would require approximately 83,000 truck trips to transport this fill (based on the approximate capacity of 16 cubic yards per truck). Impacts could also occur during installation and connection of utilities, which may impact local roadways through the potential need to slow, delay or reroute local traffic (i.e. temporary lane closures) along PR-137 and PR-155. The increase in construction vehicle traffic may also lead to degradation of local road quality. However, these potential adverse impacts on transportation would end by the completion of the 30-month construction period.

The VA will also implement BMPs to minimize the adverse traffic impacts during construction. These BMPs include following posted speed limits, performing construction-related deliveries outside of local morning and afternoon commuting periods as warranted, informing the local community about the

anticipated temporary increase in construction traffic, routing construction equipment away from neighboring residential areas to the extent practicable, and coordination with the PRHTA and municipal agencies in advance of any potential temporary lane closures and to determine the need for temporary traffic controls. These management measures are reiterated in Section 5.

Operation. Operation of the Proposed Action would have a negligible adverse impact on traffic, and no impact on parking. During operation of the Proposed Action, visitors would travel to and from the National Cemetery at various times during daylight hours, likely outside of local site-specific peak travel times (morning, 7:15-8:15 AM; afternoon, 3:00-4:00 PM), and corresponding to weekday burial service hours (between 9 AM and 3 PM). Based on the traffic impact study, burial frequency at the National Cemetery in Bayamon, and the MP5 Phase 1 cemetery design, up to approximately five funeral processions (average 15 vehicles per procession) would be held on weekdays between 9:00 AM and 3:00 PM. Combined with additional daily vehicle traffic associated with visitors and administration and maintenance staff, the total daily traffic volume was estimated at approximately 206 vehicles once the Phase 1 cemetery is fully operational (the traffic impact study assumed this would be in 2018) (Vagtec, 2016). This increase in traffic volume along PR-137 during operations is less than 20% above current traffic volumes (measured in 2015) and therefore would not produce a long-term, significant adverse impact to local traffic conditions as defined at 38 CFR 26(2)(ii); this regulation defines a significant traffic impact as "an increase in average daily traffic volume of at least 20% on access roads to the Site or the major roadway network." Accordingly, the traffic impact study concluded that acceptable levels of operation would continue for PR-137 and PR-155 based on the projected operational traffic volume (Vagtec, 2016).

The Phase 1 cemetery is designed to provide ample parking for all visitors and employees. Therefore, no impacts to parking would occur at on in vicinity of the site.

3.13.2.2 No Action

Under No Action, the cemetery would not be constructed or operated. No transportation or parking impacts would occur at or in vicinity of the site.

3.14 Utilities

3.14.1 Existing Conditions

The existing condition of relevant utilities was presented in the Final PEA (VA, 2011) and in the MP5 Project Narrative (MP5, July 20, 2016). A brief summary of this information is presented in this section, while detailed information can be found in the referenced reports.

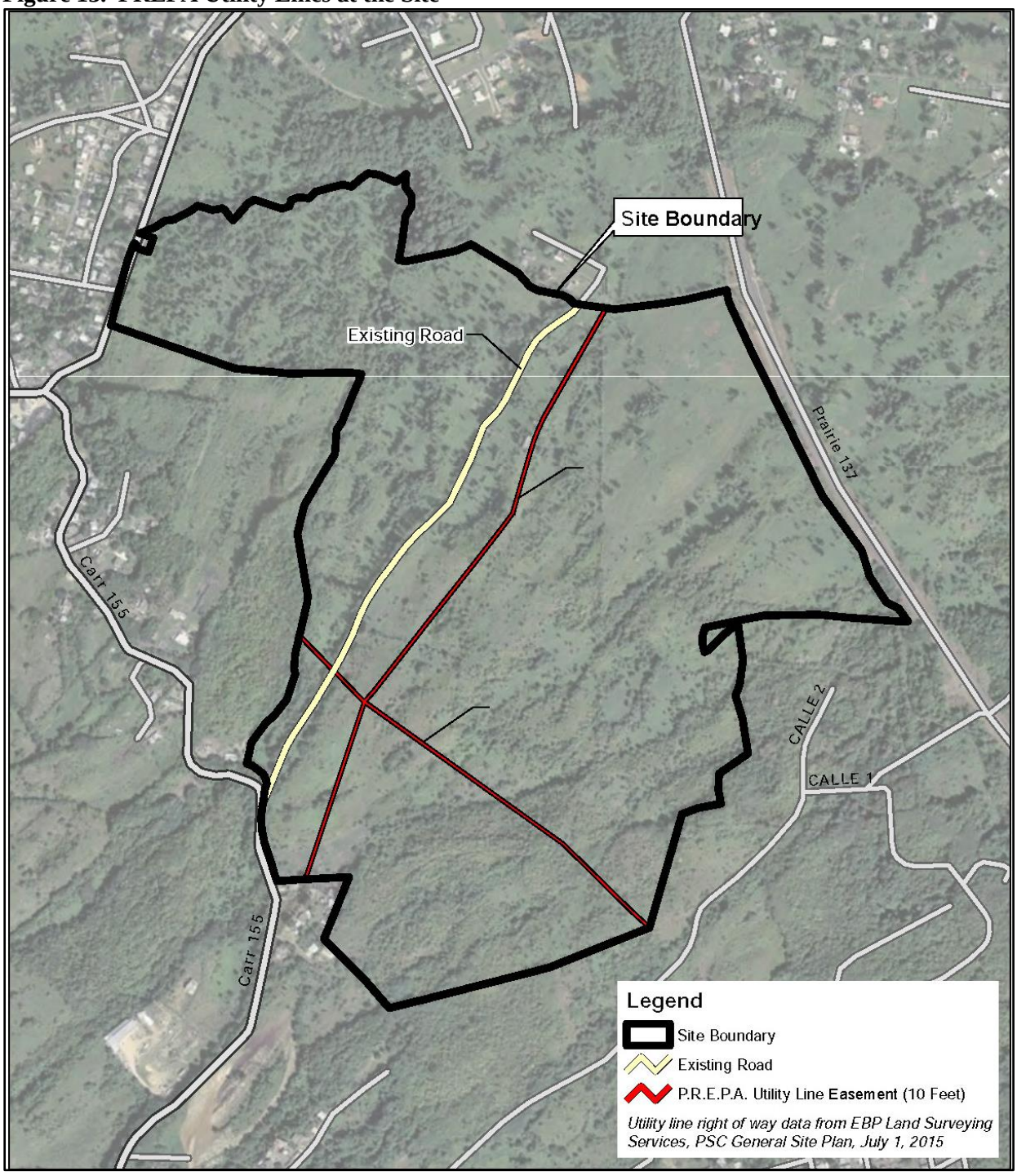
Potable Water: The Puerto Rico Aqueducts and Sewers Authority (PRASA) supplies potable water to the area surrounding the site. The potable water is sourced from the Morovis Sur Filtration Plant, which reportedly has an average flow of 3.24 MGD and a maximum flow capability of 5.34 MGD (MP5, April 26, 2016). A 4-inch diameter potable water line is present along PR-155. Additionally, a water main extends into the site along the existing paved access road from the southwest to the northeast to supply the residential area adjacent to the north of the site (MP5, July 20, 2016).

Sanitary Sewerage: The PRASA supplies municipal sanitary sewer service to the area surrounding the site. A sewer manhole located is located on PR-155. Sanitary sewage discharges from this manhole to a pumping station, which connects to a secondary treatment plan, with an average flow of 0.5 MGD (MP5, July 20, 2016).

Electric Service: The Puerto Rico Electric Power Authority (PREPA) supplies electrical service to the site and owns the existing electrical utility lines that originate along PR-137, pass through the site, then continue west to serve the communities beyond the site, as depicted in Figure 13.

Telecommunications: CLARO provides telecommunication services in the area (VAb, 2016). Existing telecommunication lines owned by CLARO originate along PR-155, and cross the site from south to north to provide service to the residential area adjacent to the northern site boundary. Telecommunications Regulatory Board of Puerto Rico (JRTPR) also requires consultation regarding telecommunication alignments.

Figure 13. PREPA Utility Lines at the Site



3.14.2 Environmental Consequences

3.14.2.1 Proposed Action

Construction. Construction of the Proposed Action would have a direct, short-term, less-than-significant adverse impact on utilities. This impact is due to the need to relocate and extend utilities at the site while maintaining service to the surrounding community, which potentially could cause a temporary disruption in utility service to the surrounding community. However, potential disruptions are not anticipated due to planning by the utility providers, and any disruption would be anticipated to be in the order of hours. The following discussion is based on the most recent information presented in the MP5 Project Narrative (MP5, April 26, 2016) regarding potential impacts to selected utilities during construction of the Proposed Action.

Potable Water: Potable water will be supplied by PRASA to the Phase 1 National Cemetery via a new connection along the existing water line utilized by residents at Hipolito Reyes. This ensures that the potable water supply to these residents in not disrupted during the construction process. The VA would continue to consult with PRASA should any further modifications or new water lines be proposed.

Irrigation Water: Based on the MP5 Project Narrative (VAb, 2016), the Phase 1 cemetery will utilize up to approximately 72,000 gallons per day (equivalent to 6 million gallons annually) of water to irrigate approximately 13 acres of landscaped vegetation. The irrigation water will be obtained through a combination of on-site rainwater harvesting and stormwater retention ponds, with onsite groundwater wells used as a backup source of irrigation water. Accordingly, irrigation will have no impact on potable water service to the surrounding community.

Sanitary Sewerage: Based on discussions between the VA and PRASA, the sanitary sewerage utility will be installed to extend from the Phase 1 cemetery buildings via a 6-inch diameter pipe to the existing manhole at PR-155. The VA will submit a service agreement application for sanitary sewerage service along with detailed plans of the Proposed Action to the PRASA for final review and approval (VAb, 2016).

Electricity: Based on discussions between the VA and PREPA, the Proposed Action will require the relocation of the existing on-site power lines that cross through the site and serve the surrounding community. According to the MP5 Project Narrative (VAb, 2016), PREPA plans to relocate these powerlines to a new point of connection along PR-137. PREPA estimates the relocation will cost approximately $71,143.00. PREPA is also considering a change in primary voltage in the area, from 8.32KV to 13.2KV. The VA will submit detailed plans of the Proposed Action to PREPA in advance of construction activities to ensure electrical service is available at the site, to avoid service disruptions to existing customers, and to confirm the specific voltage that will be available.

Telecommunications: CLARO will provide telecommunications service to the Phase 1 cemetery. The existing telecommunication lines crossing through the site will be relocated to a new concrete utility pole located along PR-155 near the proposed maintenance road entrance. The telecommunications lines will then extend east to the Phase 1 cemetery buildings. Additionally, the telecommunications lines are proposed to extend from a manhole near the Maintenance Building to the residential area located adjacent to the northern site boundary. An easement will be in place to allow CLARO access to these telecommunication lines (VAb, 2016). The VA would also coordinate with Telecommunications Regulatory Board of Puerto Rico (JRTPR) to ensure there are no issues with this proposed alignment.

Operation. Operation would have no impact on utilities because the existing utility providers have sufficient capacity to serve both the Phase 1 cemetery and existing customers without causing a service disruption to either group. Additionally, any easements will be maintained to allow utility providers to perform maintenance, ensuring continuity of service to the National Cemetery and the surrounding community.

3.14.2.2 No Action

Under No Action, the proposed National Cemetery would not be constructed, and no impacts to utilities would result.

3.15 Environmental Justice

3.15.1 Existing Conditions

The Final PEA (VA, 2011) concluded that the anticipated acquisition of the site followed by proposed construction and operation of a National Cemetery would have no significant adverse impact on environmental justice. The Final PEA also indicated that the Proposed Action would likely have a short- and long-term positive socioeconomic impact on local employment and personal income. These conclusions remain consistent for the Proposed Action analyzed in this SEA. However, a brief discussion of this topic is provided in the following section.

Based on the most recent data available for Morovis, the median household income was $16,536, 50.1% of the population was below the poverty level of $24,250 for a family of four in 2015, while 45.5% of the population in Puerto Rico was below the Federal poverty level (US Census, 2015).

The combination of the low income and minority populations is higher than the US averages. Therefore, the population of Morovis would be considered to be within an environmental justice area.

3.15.2 Environmental Consequences

3.15.2.1 Proposed Action

Construction and Operation. The Proposed Action would have no significant adverse or beneficial impact on Environmental Justice. That is, the Proposed Action would not substantively change the underlying socioeconomic conditions for the population within the Environmental Justice Zone. However, as previously described, the Proposed Action is likely to have a short- and long term, direct, moderate but less-than-significant beneficial socioeconomic impact on local employment and personal income, as previously described. The positive impact will be greatest during the 30-month construction period due to hiring of qualified workers, but will be negligible during operation because relatively few employees (approximately 11) are needed to maintain the National Cemetery.

3.15.2.2 No Action

Under the No Action Alternative, the existing socioeconomic conditions that cause the population to be within an Environmental Justice Zone would remain unchanged. However, the moderate but less-than-significant beneficial impacts on socioeconomics associated with implementing the Proposed Action would not occur.

3.16 Cumulative Impacts

The CEQ regulations for implementing NEPA define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to 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" (40 CFR 1508.7). This SEA considers past, present, and reasonable foreseeable short-term and long-term future effects from implementing the Proposed Action and other projects that coincide with the location and timetable of the Proposed Action.

Based on a review of the Puerto Rico Planning Board's most recent Comprehensive Economic Development Strategy (PRPB, 2014), there are no major projects planned for the Morovis area that, when considered incrementally and cumulatively with the Proposed Action, would increase the intensity of the Proposed Action's impacts (adverse or beneficial) to significant levels.

Therefore, the Proposed Action is anticipated to result in no significant cumulative adverse impact to any of the resources analyzed in this SEA. While the proposed site for the National Cemetery contains agricultural land used as pasture, the loss of this agricultural use is not significantly adverse because sufficient agricultural land remains available throughout Puerto Rico. Furthermore, this land use change within the site boundary will not cause a change in land use or the rural nature of the surrounding community. The appearance of the proposed National Cemetery as a park-like National Shrine with buildings constructed in concert with regional architectural design will ensure that the proposed National Cemetery "fits" within the larger community. Additionally, the VA has constructed and operated similar National Cemeteries, both within Puerto Rico and on the US mainland, without causing a cumulative increase in impacts. This is primarily due to the VA's implementation of best management practices during construction and operation, ensuring that any potential adverse impacts are maintained at less-than-significant levels. Furthermore, while construction and operation of a National Cemetery requires changes to several aspects of the environment (e.g. topographical ground elevation; landscaping), the overall action results in a generally low-intensity use of the land and resources. Accordingly, no significant cumulative adverse impacts are anticipated for the Proposed Action.

3.17 Potential for Generating Substantial Controversy

The Final PEA (VA, 2011) concluded that acquisition of the site for the proposed construction and operation of a National Cemetery would not generate substantial controversy. The VA's subsequent purchase of the site in March 2013 has not generated any substantial controversy. Additionally, as described in greater detail in the following Public Involvement discussion under Section 4.2, only positive public support for the Proposed Action was received during the VA's public informational meeting held at the Morovis Town Hall on July 26, 2016. It is noted that should the Proposed Action not be implemented (the No Action Alternative), it would cause a long-term significantly adverse impact on the public, who are aware that the current National Cemetery in Bayamon is reaching capacity and have anticipated development of the site in Morovis for the Puerto Rico National Cemetery Replacement. Under the No Action Alternative, the public would be required to wait for a suitable site to be located and a design created for a National Cemetery elsewhere in Puerto Rico, a process that takes several years.

The public will again have an opportunity to comment on the Draft SEA during the 30-day review period. Any substantive comments will be considered and incorporated into the Final SEA.

Furthermore, as discussed in greater detail in the following Section 4.1, the VA has solicited input from various federal, Commonwealth, and local government agencies during the master planning process for the Proposed Action and in preparation of the Draft SEA for the Proposed Action. None of these agencies expressed opposition to the Proposed Action. The VA will also provide these agencies an opportunity to comment on the Draft SEA during the 30-day review period. Any comments received will be considered and addressed in the Final SEA.

4.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

4.1 Federal, Commonwealth, and Local Agency

NCA has solicited input in writing from Federal, Commonwealth, and local agencies at two points during preparation of the SEA for the Proposed Action. The first point occurred on July 19, 2016, early in the development of the Draft SEA, to obtain agencies preliminary concerns and/or requirements and to invite agencies to attend the public information meeting. The second point will occur concurrently with the publication of the Draft SEA; letters will be mailed to inform agencies of the availability of the Draft SEA and request their input within the 30-day comment period. Input received from agencies will be incorporated into the Final SEA. Copies of letters and communication to and from agencies to date are provided in Appendix B. Table 15 lists the coordination activities and input received as part of the SEA for the Proposed Action to date.

Table 15. Summary of Agency Coordination and Input

Agency	Coordination and Input
US Fish and Wildlife Service – Puerto Rico Ecological Services Office	Invited to public meeting and solicited input on Draft SEA. (For permits and notifications, see Section 3.5 and 3.9).
US Environmental Protection Agency, Region 2	Invited to public meeting and solicited input on Draft SEA.
US Army Corps of Engineers – Antilles Permits Section	Invited to public meeting and solicited input on Draft SEA. November 19, 2015, VA submitted JD request with Wetland Delineation Report for USACE review. March 10, 2016, USACE issued preliminary JD signed March 3, 2016.
Departmento de Recursos Naturales y Ambientales (Puerto Rico Department of Natural and Environmental Resources)	Invited to public meeting and solicited input on Draft SEA. March 18, 2016, VA submitted Karstic Physiography Authorization Application regarding PRAPEC to PRDNER for review. June 1, 2016, PRDNER issued signed authorization letter regarding PRAPEC, allowing investigations and development to occur, and also specified the on-site avoidance measures and off-site compensation commitments required for the Proposed Action.
Junta de Calidad Ambiental (Puerto Rico Environmental Quality Board)	Invited to public meeting and solicited input on Draft SEA.
Departmento de Transportacion y Obras Publicas (Puerto Rico Highway and Transportation Authority)	Invited to public meeting and solicited input on Draft SEA. July 22, 2015, VA requested input regarding alignment of entrance and exits. August 21, 2015, PRHTA provided recommendations for the alignment.

Agency	Coordination and Input
Puerto Rico State Historic Preservation Officer (SHPO)	Invited to public meeting and solicited input on Draft SEA. August 13, 2015, teleconference between VA and SHPO to discuss prior cultural resources studies from 2011. October 22, 2015, SHPO issues formal letter requesting Phase II Cultural Resources Investigation Work Plan. On December 3, 2015, VA submitted Draft Phase II Cultural Resources Investigation Work Plan to SHPO for review. On January 7, 2016, SHPO issued letter with comments and recommendations for the revised Phase II Cultural Resources Investigation Work Plan. January 28, 2016, VA submits Final Phase II Cultural Resources Investigation Work Plan to SHPO for approval. March 2, 2016, SHPO issues letter approving the Final Phase II Cultural Resources Investigation Work Plan. VA subsequently commissions contractor to perform investigation according to the Final Phase II Cultural Resources Investigation Work Plan. On January 6, 2017, the results of the Phase II investigation along with a letter requesting "not eligible" concurrence were submitted to the SHPO On February 13, 2017, the SHPO sent VA a letter stating they could not concur without additional information. On February 23, 2017, additional results from the Phase II investigation were submitted to the SHPO for review. At this time, consultation with SHPO regarding findings of the Phase II investigation is on-going.
Puerto Rico Board of Planning	Invited to public meeting and solicited input on Draft SEA.
Natural Resources Conservation Service, Morovis Service Center	Invited to public meeting and solicited input on Draft SEA.
Morovis Mayor's Office	Invited to public meeting and solicited input on Draft SEA.
US Department of Agriculture, Arecibo Service Center	Invited to public meeting and solicited input on Draft SEA.
US Geological Survey, Caribbean Water Science Center	Invited to public meeting and solicited input on Draft SEA.
Telecommunications Regulatory Board of Puerto Rico (JRTPR)	August 11, 2015, JRTPR issues letter with recommendations for telecommunications infrastructure (letter is in MP5 Project Narrative, July 20, 2016).
Claro Puerto Rico	Invited to public meeting and solicited input on Draft SEA.
Federal Office, Municipality of Morovis	Invited to public meeting and solicited input on Draft SEA.
Puerto Rico Aqueducts and Sewers Authority (PRASA)	Invited to public meeting and solicited input on Draft SEA. August 21, 2015, PRASA issues letter requesting that they be provided with more information about the Proposed Action before issuing recommendations on water and sewer infrastructure alignments (letter is in MP5 Project Narrative, July 20, 2016). September 17, 2015, PRASA

Agency	Coordination and Input
	issues letter with recommendations for water and sewer infrastructure alignment (letter is in MP5 Project Narrative, July 20, 2016).
Puerto Rico Electric Power Authority (PREPA)	Invited to public meeting and solicited input on Draft SEA. October 14, 2015, PREPA issues letter with information regarding the alignment of electrical utilities (letter is in MP5 Project Narrative, July 20, 2016).
Organización Ciudadanos del Karso	Invited to public meeting and solicited input on Draft SEA.
Puerto Rico Department of Education	Invited to public meeting and solicited input on Draft SEA.

4.2 Public Involvement

4.2.1 Public Information Meeting

On July 26, 2016, the VA held a meeting to inform the public about the Proposed Action and to solicit comments for consideration during development of the Draft SEA. The public meeting was held from 6-8 p.m. at the Morovis Town Hall, Cll Del Carmen, Morovis, 00687, Puerto Rico. Approximately 40 people attended the meeting. The public meeting sign-in sheet is provided in Appendix C. In advance of the meeting, VA published an announcement inviting the public to attend the meeting. The announcement was published in Spanish in *Primera Hora* on July 14, 15, and 16, 2016, and in *El Nuevo Dia* on July 21, 22 and 23, 2016 (affidavits of publication in Appendix C). During the meeting, the VA presented a background about the mission of the NCA, the purpose and need for the Proposed Action, major components of the Proposed Action, and answered comments from the meeting attendees. The meeting was translated live into Spanish for any audience member requesting this service. A court reporter recorded questions and comments from attendees and the VA during the meeting. A summary of meeting comments is provided in Section 4.2.1.1.

4.2.1.1 Summary of Meeting Comments

Public comments during the public information meeting on July 26, 2016, were primarily statements of appreciation for a new National Cemetery in Morovis. One audience member asked for additional information to transfer an interment from the Bayamon National Cemetery to the proposed National Cemetery Replacement in Morovis. Comments written by the public and a transcript of the public information meeting comments and answers are provided in Appendix C.

4.2.2 Public Review of Draft Site-Specific Environmental Assessment

The VA's NEPA guidance states that the NEPA process must include at least a 30-day public comment period for the Draft SEA, which starts with the publication of a Notice of Availability (NOA). The NOA for this Draft SEA will be published for two non-consecutive days, one of which will be a Sunday, in a local newspaper (affidavits of publication will be included in Appendix C). As indicated in the NOA, the Draft SEA can be reviewed in hardcopy at the Morovis Town Hall and the Bayamon National Cemetery, and may be downloaded in electronic format from the website: http://www.cem.va.gov/cem/EA.asp. In addition to the NOA, the VA will mail letters to notify stakeholders (recipients listed in Table 15) of the availability of the Draft SEA and a request to provide comments within the 30-day review period.

Comments on this Draft SEA may be submitted by email to Glenn.Elliott@va.gov (please include "Puerto Rico National Cemetery Replacement, Morovis" in the subject line) or by U.S. Postal Service mail to Mr. Glenn Elliott / Puerto Rico National Cemetery Replacement, Morovis, Draft SEA, U.S. Department of Veterans Affairs, Office of Construction & Facilities Management, 425 I Street NW, Room 6W417a, Washington DC 20001. Comments should be submitted by the end of the 30-day public comment period, which begins with the publication of the NOA for the Draft SEA. Any comments received on this Draft SEA will be documented in and considered during preparation of the Final SEA.

5.0 BEST MANAGEMENT PRACTICES AND MONITORING

This section consolidates the best management practices (BMPs), avoidance, impact minimization techniques, on-site monitoring activities, and off-site compensation commitments (as well as monitoring of those off-site compensation commitments), as previously described in Section 3, to maintain the potential impacts associated with implementing the Proposed Action at less-than-significant adverse levels for the environmental resources analyzed in this SEA. A summary of potential environmental permits for construction and operation of the Proposed Action is provide in Table 16.

AESTHETICS

Construction. Short-term, less-than-significant adverse impacts will be minimized through implementation of the following:

- Control fugitive dust emissions through routine construction BMPs, including covering haul trucks, minimizing construction vehicle speeds entering and leaving the site, and within the site.
- Turn off construction vehicles when not in use or idling more than three minutes.
- Limit tree clearing and revegetate cleared areas with native, non-invasive species.
- Maintain vegetated buffer zone of at least 20 feet between the National Cemetery and residential abutters.
- Design buildings according to regional architectural styles.

Operation. No adverse impacts anticipated. However, the VA will implement the following to ensure beneficial, though less-than-significant, impacts are maintained:

- Professionally maintain landscaped areas.
- Limit nighttime lighting to the flagpole, entrance, and security lights around buildings.
- Professionally maintain the infrastructure, entrance, and grounds, and schedule selected maintenance activities (mowing, etc.) to avoid disrupting interment services.
- Maintain the 20-foot vegetation buffer between the National Cemetery and residential abutters.

AIR QUALITY

Construction. Short-term, less-than-significant air quality impacts will be minimized through implementation of the following:

- Use appropriate dust control methods during construction activities. Dust control methods include water sprays, chemical soil additives, and wheel washers.
- Reduce vehicle speeds to 15 miles per hour or less, to reduce dust generated by vehicles and equipment on unpaved surfaces within the site, and follow posted speed limits on paved surfaces off-site.
- Limit engine idling to no more than three minutes.
- Maintain construction vehicles in good working order.
- Quickly re-vegetate exposed soils following completion of construction activities in designated areas.

Operation. Negligible adverse air quality impacts could be further minimized through implementation of the following:

- Maintain emergency standby generator in good working condition.
- Maintain operational maintenance vehicles in good working condition.

CULTURAL RESOURCES

Construction. The VA would ensure the Proposed Action causes no adverse effects to cultural resources by implementing the following avoidance, minimization, and management measures:

- Establish a 50-meter buffer zone around Quebrada Fránquez 1 (MR100012), Quebrada Fránquez 2 (MR100013), and the Cueva de la Moca (MR0100010).
- Establish 123-acre preservation area, which encompasses the Quebrada Fránquez 1, Quebrada Fránquez 2, and the Cueva de la Moca.
- Prior to construction, the VA will obtain concurrence from the PRSHPO regarding the VA's anticipated finding of "No Adverse Effects to Historic Properties" per 36 CFR800.5(a)(1) (i.e., Section 106 of the NHPA) for this undertaking with regard to effects to historic properties.
- The Memorial Walk will encircle the Las Cruces de Catalina site (VAb, 2016). While the actual location of the artifact may not be visible along the walk, the Proposed Action may include interpretive signage to present the significance of the region, and the environmental and historical elements found within.
- Should human remains or other cultural items as defined by NAGPRA be discovered during project construction, the construction contractor would immediately cease work until the VA, a qualified archaeologist, and the PRSHPO are contacted to properly identify and appropriately treat discovered items in accordance with applicable Commonwealth and Federal law(s).

Operation. The VA would ensure the Proposed Action causes no adverse effects to cultural resources by implementing the following avoidance, minimization, and management measures:

- Continue to ensure the 123-acre preservation area remains in place.
- Maintain the undeveloped 50-meter buffer zone around Quebrada Fránquez 1, Quebrada Fránquez 2, and Cueva de la Moca, as identified in the Phase II Cultural Resources Investigation.

GEOLOGY, SOILS, AND TOPOGRAPHY

Construction. Long-term, less-than-significant adverse impacts to geology, and moderate but less-than-significant adverse impacts to soil and topography will be minimized through implementation of the following:

- Based on VA's survey of the site and identification of areas suitable for development and for preservation, the construction contractor will stake these areas prior to construction to ensure construction equipment/development of the Proposed Action remains within the Phase 1 cemetery 50-acre development area and does not encroach into the on-site 123-acre preservation area.
- As required by PRDNER in the June 1, 2016, PRAPEC authorization letter, implement off-site compensation commitments to account for impacts to regulated features based on the Proposed Action for the 50-acre Phase 1 cemetery, *as well as* potential impacts during potential future development phases elsewhere within the 124-acre suitable development area.
- Zanjones: As required by PRDNER in the June 1, 2016, PRAPEC authorization letter, implement off-site compensation commitments to account for the approximately 11.58 acres of zanjones that will be impacted during development of the 50-acre Phase 1 cemetery, as well as approximately 5.42 acres of zanjones (outside of the 50-area Phase 1 development are) that could be impacted during potential future development phases elsewhere within the 124-acre suitable development area. Avoid and establish a 10-meter buffer zone around the approximately 24-acres of zanjones features that will not be impacted during any development phase at the site.

- Sinkholes and karstic depressions: avoid and maintain a 10-meter buffer zone around the sinkhole features, which are located in the 123-acre preservation area on-site and which will not be impacted by the Proposed Action to develop the Phase 1 cemetery. For impacts to karstic depressions, implement the PRDNER-required off-site compensation commitments.
- Caves: establish and maintain a 50-meter buffer zone around Cueva De la Moca, which is located within the 123-acre preservation area on site. Install fencing and signs around the perimeter of the cave to protect it from being damaged and/or vandalized.
- Grade using a terracing strategy, thus reducing the existing slope of the terrain from approximately 12% to generally 5%. Comply with Section 10.6 (Grading Guidelines) from the NCA Design Guidelines (March, 2010, or newer), which recommends a maximum slope of 15% for mowed slopes.
- Prepare, submit, and obtain EPA-NPDES Construction Stormwater Permit, including a Sediment and Erosion Control Plan (CES) and Stormwater Pollution Prevention Plan (SWPPP). Follow permit requirements, such as design, installation, and maintenance of erosion and sediment controls during the duration of construction activities and any subsequent soil disturbance activities near site drainages. Such controls may include silt fences and water breaks, detention basins, filter fences, sediment berms, interceptor ditches, straw bales, rip-rap, and/or other sediment control structures; re-spread stockpiled topsoil; and seed/re-vegetate areas temporarily cleared of vegetation.
- Minimize the amount of exposed soils at any given time during construction activities. Quickly re-vegetate disturbed areas following completion of activities.
- Provide an undisturbed natural buffer between the activity area and surface drainages, and direct stormwater run-off to vegetated areas.
- Implement spill and leak prevention and response procedures for construction equipment.
- If requested by NRCS, submit an NRCS Farmland Conversion Impact Rating Form.

Operation. Long-term, negligible adverse impacts will be minimized through implementation of the following:

- Maintain stormwater management system and landscaping with healthy vegetative cover to prevent exposing soils and subsequent soil erosion.
- Stage and cover excess soils near the Maintenance Building (or other designated area within the Phase 1 cemetery).
- Comply with Section 10.6 (Grading Guidelines) from the NCA Facilities Design Guide (March, 2010, or newer), which requires that interment areas be located on slopes of 15% or less.

HYDROLOGY AND WATER QUALITY

Construction and Operation. Short-term (construction) and long-term (operation), negligible adverse impacts on hydrology and water quality will be minimized and/or avoided through implementation of the measures specified for Geology, Soils, and Topography; for Wetlands; as well as the following:

- Entirely avoid and do not impact to federally jurisdictional wetlands and/or waterbodies.
- Establish and maintain a 15-meter buffer zone from the top of the bank from Fránquez Creek and the unnamed creek, where development will be prohibited. This buffer zone is also needed to comply with the 5-meter buffer zone required by PRDNER under Laws 1366 and 49.
- Design and construct a bridge over Fránquez creek with an open bottom geometry avoiding environmental impact (fill) to the waterway (floodway). The bridge will have the hydraulic capacity to accommodate a regional 100-year storm and the abutments would be located outside the 100-year floodplain and the 15-meter buffer zone.

- Comply to the maximum extent technically feasible with the "Energy Independence and Security Act" approved by Congress in 2009 (EISA Section 438), to maintain or retain pre-development hydrologic conditions following development.
- Limit creation of new impervious surfaces to approximately 37 acres or less.
- Utilize native vegetation and drought-resistant vegetation for area landscaping to reduce irrigation requirements.
- Route stormwater runoff from impervious surfaces to the stormwater retention pond and other natural drainage areas.
- Implement spill and leak prevention and response procedures, including maintaining a complete spill kit at the construction area, to reduce the impacts of incidental releases of vehicle fluids.
- Limit use of pesticides and maintenance chemicals, following label requirements and keeping usage to the lowest quantities possible, thereby reducing the potential for water quality impacts.
- Construction and maintain crypts and other interments to avoid contact with groundwater.
- Utilize rainwater harvesting as the primary irrigation water source, with on-site groundwater extraction wells for a backup water source. Do not use the public potable water utility for irrigation water.

WILDLIFE AND HABITAT

Construction and Operation. Long-term, less-than-significant adverse impacts during construction, and negligible during operation, to wildlife and habitat will be minimized through implementing the following:

- Implement USFWS/DNER Protection Protocol for the Puerto Rican Boa (*Epicrates inornatus*), which involves search, capture and relocation of boas from active construction areas and areas that will be disturbed by construction in the near future by the field biologist permanently assigned to the project during the initial construction (land clearing and grubbing) phase. Following initial clearing, the field biologist would only be on-call and would mobilize to the site in the event that a Puerto Rican Boa is encountered and required removal
- Establish and maintain the 123-acre preservation area on-site.
- Limit Phase 1 cemetery development to the 50-acre area within the 124-acre suitable development area.
- Implement the off-site compensation commitments specified by PRDNER as required under PRAPEC (see June 1, 2016 letter).
- Flag and place a fence along or around any sensitive areas encompassed by the 50-acre Phase 1 cemetery development area to protect the habitat of the species and to delineate the construction limit. Also, signs will be posted to preclude construction activities from taking place in these sensitive areas encompassed by the Phase 1 cemetery development.
- A Field Biologist designated by VA will be onsite during earthwork activities. The Field Biologist will ensure that protection methods are implemented to ensure that construction does not take place outside of the 50-acre Phase 1 development area or within the designated 123-acre preservation area on-site. During Phase 1 cemetery construction, protection measures will be implemented throughout the duration of the earthwork activities. Moreover, environmental monitoring plans will be implemented for the flora and fauna which will be prepared and performed by qualified and experienced professionals.
- Any required clearing and grubbing will be performed in such a manner as to minimize damage to existing flora and fauna adjacent to the Proposed Action boundary. As necessary, the construction contractor will be instructed to avoid construction work in the designated preservation areas. All monuments and markers will be protected in the same manner before beginning operations around them.

- Implement the reforestation plan, which includes planting approximately 3,000 native, non-invasive trees at the site. Any trees located outside of Proposed Action construction area that are scarred or damaged will be restored to its original condition or properly removed and relocated.
- Additional construction protection measures and BMPs will be maintained within the work zones for the duration of construction activities within the specific work areas, as specified in Section 3.6.2.1.

NOISE

Construction. Short-term, less-than-significant impacts to sensitive receptors from noise will be minimized through implementation of the following:

- Schedule construction activities for daylight hours, to minimize impacts to ongoing cemetery operations (associated with Early turn-over memorial services) and nearby residential abutters.
- Maintain mufflers and sound shielding on construction equipment and routine maintenance equipment.
- Minimize equipment idling, and shut down construction equipment when not in use.

Operation. Long-term, less-than-significant impacts to sensitive receptors from noise will be minimized through implementation of the following:

- Limit rifle salutes during committal and memorial services to daytime hours.
- Operate maintenance equipment during daylight working hours and away from active committal and memorial services, thereby maintaining the dignity and solemnity of the National Cemetery environment during these services.

LAND USE

Construction and Operation. Long-term, negligible adverse impacts on land use will be minimized through implementation of the following:

- Develop the Phase 1 cemetery according to the final MP5 (VAb, 2016) and construction design documents.
- Utilize the site as a National Cemetery, consistent with NCA operational guidance.
- Reserved the property for public use only for Veterans' funeral services, visitation, and occasional ceremonies. No recreational use will be permitted.
- Establish and maintain a buffer zone with a minimum of six meters (20 feet) between property boundaries or fence lines and residential abutters.
- Establish and preserve other buffer zones and the 123-acre preservation area on-site as identified in the final MP5 (VAb, 2016), and off-site compensation commitments per the PRAPEC Special Determination Authorization issued by PRDNER on June 1, 2016.
- Reserve the remainder of the 124-acre area suitable for development (inclusive of the 50-acre Phase 1 cemetery development) for potential future burial expansion phases of the National Cemetery; complete separate NEPA studies prior to any potential future development phase.

FLOODPLAINS, WETLANDS, AND COASTAL ZONE MANAGEMENT

Construction and Operation. Adverse impacts to wetlands will be avoided through implementation of the measures described for Soils; Hydrology and Water Quality; as well as the following:

- The Proposed Action entirely avoids and will not impact the federally jurisdictional 0.05-acre wetland area that occurs near the northwest boundary of the site. The wetland is located within the 123-acre preservation area and would be entirely avoided during development of the Phase 1 National Cemetery.
- Establish and maintain a 15-meter buffer zone from the top of the bank of the Fránquez Creek and the unnamed creek, where development will be prohibited.
- Where possible, establish new site drainages potentially capable of developing new wetland areas.
- Design and construct the proposed bridge over Fránquez Creek with footings located outside of the buffer zone and outside of the regional 100-year storm boundary.

The site is located outside of the 100-year floodplain and is not within a Coastal Zone Management area. Therefore, the Proposed Action would have no impacts related to floodplains or coastal zone management.

SOLID WASTE AND HAZARDOUS MATERIALS

Construction. Short-term, less-than-significant adverse impacts to the environment from solid waste and hazardous material handling will be minimized through implementation of the following:

- Prior to demolition, remove regulated building materials (ACM, LBP) from the existing structures at the site. Dispose of regulated building materials according to applicable federal and Commonwealth regulations.
- Re-use excess soils on-site to the maximum extent possible.
- Stage and operate construction equipment in designated areas and away from sensitive receptors when not in use.
- Perform construction vehicle maintenance and inspections to reduce the potential for incidental releases of vehicle fluids.
- Maintain spill kits to rapidly respond to and limit impacts from accidental releases of vehicle fluids. Report releases of regulated quantities of regulated fluids (gasoline, diesel, etc.) to the VA and PRDNER. Perform cleanup according to applicable regulatory requirements.
- Recycle excess construction debris, such as wood and metal scraps, to the maximum extent practicable.

Operation. Long-term, less-than-significant adverse impacts to the environment from solid waste and hazardous material handling will be minimized through implementation of the following:

- Perform proper vehicle maintenance and routine inspections to reduce the potential for incidental releases of vehicle fluids.
- Manage solid wastes in designated areas, and establish routine pickup and disposal to appropriate landfill or recycling facilities by qualified vendors.

TRANSPORTATION AND PARKING

Construction. Short-term, less-than-significant adverse impacts on transportation (traffic only) will be minimized through implementation of the following:

- Construct entrance/exit roadway alignments according to PRHTA- and FHWA-approved designs.
- Coordinate with PRHTA regarding any necessary signage needed near the construction entrance to alert vehicles of entering and exiting construction traffic. As warranted, utilize law enforcement for traffic control during construction periods.
- Schedule construction activities such that traffic increases do not coincide with typical morning and evening periods when there may be increased local traffic levels.
- Route transportation of construction equipment (namely haul trucks bringing fill soils to the site) to minimize impacts on neighboring communities.

Operation. Long-term, negligible adverse impacts on transportation (traffic only) will be minimized through implementation of the following:

- Install signage near the cemetery main entrance to alert travelers of vehicles entering and exiting the site.
- Continue coordination with the PRHTA to identify traffic improvements that reduce the potential for accidents involving visitors' vehicles.

UTILITIES

Construction and Operation. Short-term, less-than-significant adverse impacts on utilities will be minimized through implementation of the following:

- In advance of rerouting and extending private utilities to the site, continue to communicate with private utility providers to ensure no or minimal disruptions occur to existing customers during the construction period. Utility providers include PRASA (potable water, sewer), PREPA (electricity), and CLARO and JRTPR (telecommunications).
- Inform nearby residential areas in advance of any planned utility service outages.
- Where feasible, obtain irrigation water from the on-site stormwater retention pond and groundwater wells, and do not use the potable water utility (PRASA) for irrigation water.

Table 16. Possible Permits, As Applicable

Permit, Approval, or Certification	Responsible Agency	Applicable Criteria	Required Actions	Permitting Schedule	Comments
Puerto Rico Commonwealth Permitting/Approvals					
NPDES Construction Stormwater Permit /Stormwater Pollution Prevention Plan (SWPPP) including Sediment and Erosion Control Plan (CES)	U.S. Environmental Protection Agency (EPA),	Construction of any facility that disturbs 1 acre or more	Prepare a Notice of Intent (NOI) and SWPPP Plan for Construction, Submit NOI at least 1 week prior to construction	2 weeks to prepare, 2 days to achieve permit coverage	The NOI gets submitted to EPA's Office in San Juan.
Karst Special Planning Area Development Authorization	Department of Natural and Environmental Resources (PRDNER)	2014 Karst Special Planning Area Regulation (PRAPEC) prohibits development without prior approval and compensation.	Special Determination Authorization letter from PRDNER	Evaluation process could take up to 6 months	Approval letter was obtained from DNER June 1, 2016. Contributions for off-site compensation required.
Puerto Rico Utility Permitting/Approvals					
Potable Water, Sanitary Sewer	Puerto Rico Aqueduct and Sewer Authority (PRASA)	PRASA is the state agency responsible to provide potable water to residents of Puerto Rico	Submit application to the Regional Office in Arecibo with copy of drawings	3-5 days to prepare application and 2-3 weeks to obtain endorsements from PRASA	PRASA may require improvements to the existing water system in addition to the point of connection to obtain potable water
Access Control to State Road Authorization	Puerto Rico Highway and Transportation Authority (PRHTA)	Required for any improvements such as new curb cuts, acceleration or deceleration lanes for construction access or future use.	Submit application to PRHTA with copy of drawings and proposed access to and from the Phase 1 cemetery	Variable, 3-4 weeks possible	The Design Firm must provide follow up visits regularly to expedite the evaluation process.
Electrical power service	Puerto Rico Electric Power Authority (PREPA)	PREPA is the agency responsible to provide power services to residents of Puerto Rico	Submit application to PREPA with electric drawings	The revision process at the PREPA could take 4-5 weeks	Follow-up visits to the Agency will help to expedite endorsement.

Permit, Approval, or Certification	Responsible Agency	Applicable Criteria	Required Actions	Permitting Schedule	Comments
Telecommunications	CLARO Puerto Rico (CLARO), Telecommunications Regulatory Board of Puerto Rico (JRTPR)	CLARO is the private utility that provides service throughout Puerto Rico	Submit final design plans for telecommunication alignments to CLARO and JRTPR	Variable, 3-4 weeks possible	
Federal Permitting/Approvals					
Puerto Rican Boa (*Epicrates inornatus*) Protection Protocol	U.S. Fish and Wildlife Service (USFWS) in coordination with PRDNER	Required for projects resulting in potential impacts to the federally listed Puerto Rican Boa	Implement Boa Protection Protocol during construction	1-2 weeks to prepare	See the Flora and Fauna Study (CSA, 2015) for the full Boa Protection Protocol
Jurisdictional Determination (JD)	U.S. Army Corps of Engineers (USACE)	Required for projects that may have impacts in jurisdictional waters	Perform wetland delineation and submit application to USACE.	4-6 weeks to prepare. Could take up to 6 months for approval.	Preliminary JD was obtained March 10, 2016

6.0 LIST OF PREPARERS

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8.0 GLOSSARY

Sources:

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- Glossary of Terms Used in DOE NEPA Documents, http://energy.gov/sites/prod/files/NEPA_Glossary%2008_2011.pdf
- NEPA Glossary, U.S. Fish and Wildlife Service, http://www.fws.gov/r9esnepa/Intro/Glossary.PDF

Aesthetic resources: The components of the environment as perceived through the visual sense only. Aesthetic specifically refers to beauty in both form and appearance.

Affected environment: A portion of the NEPA document that succinctly describes the environment of the area(s) to be affected or created by the alternatives under consideration. Includes the environmental and regulatory setting of the proposed action.

Alternative: A reasonable way to fix the identified problem or satisfy the stated need.

Attainment area: An area that the Environmental Protection Agency has designated as being in compliance with one or more of the National Ambient Air Quality Standards for sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. An area may be in attainment for some pollutants but not for others.

Conformity analysis: The *Clean Air Act* requires the Environmental Protection Agency to promulgate rules to ensure that federal actions conform to the appropriate state implementation plans (SIP) for air quality. Two sets of rules (one for transportation and one for all other actions) developed by EPA establish the criteria and procedures governing the determination of this conformity. A conformity analysis follows these criteria and procedures to quantitatively assess whether a proposed federal action confirms with the SIP.

Council on Environmental Quality (CEQ): Established by Congress within the Executive Office of the President as part of the *National Environmental Policy Act of 1969*, CEQ coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. The Council's Chair, who is appointed by the President with the advice and c consent of the Senate, serves as the principal environmental policy adviser to the President. The CEQ reports annually to the President on the state of the environment, oversees federal agency implementation of the environmental impact assessment process, and acts as a referee when agencies disagree over the adequacy of such assessments.

Criteria pollutant: An air pollutant that is regulated by National Ambient Air Quality Standards. Criteria pollutants include sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and two size classes of particulate matter, PM_{10} and $PM_{2.5}$ New pollutants may be added to, or removed from, the list of criteria pollutants as more information becomes available.

Cumulative effect (cumulative impact): The impact on the environment that results from the incremental impact of the action when added to 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.

Decibel (dB): A unit for expressing the relative intensity of sounds on a logarithmic scale from zero for the average least perceptible sound to about 130 for the average level at which sound causes pain to humans. For traffic and industrial noise measurements, the A-weighted decibel (dBA), a frequency-weighted noise

unit, is widely used. The A-weighted decibel scale corresponds approximately to the frequency response of the human ear and thus correlates well with the loudness perceived by people.

Effects: Effects and impacts, as used in NEPA, are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect would be beneficial. There are direct effects and indirect effects. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Endangered species: Plants or animals that are in danger of extinction through all or a significant portion of their ranges and that have been listed as endangered by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service following the procedures outlined in the *Endangered Species Act* and its implementing regulations.

Environmental assessment (EA): A concise public document for which a federal agency is responsible that serves to briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact; aid an agency's compliance with NEPA when no environmental impact statement is necessary; or facilitate preparation of an EIS when one is necessary. Includes brief discussions of the need for the proposal, of alternatives, of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted.

Environmental impact statement (EIS): A detailed written statement required by Section 102(2)(C) of NEPA, analyzing the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources.

Environmental justice: The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Executive Order 12898 directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency programs, policies, and activities on minority and low-income populations.

Finding of No Significant Impact (FONSI): A public document issued by a federal agency briefly presenting the reasons why an action for which the agency has prepared an environmental assessment has no potential to have a significant effect on the human environment and, thus, would not require preparation of an environmental impact statement.

Floodplain: The lowland and relatively flat areas adjoining inland and coastal waters including flood- prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

Fugitive emissions: Emissions that do not pass through a stack, vent, chimney, or similar opening where they could be captured by a control device. Any air pollutant emitted to the atmosphere other than from a

stack. Sources of fugitive emissions include pumps; valves; flanges; seals; area sources such as ponds, lagoons, landfills, and piles of stored material (such as coal); and road construction areas or other areas where earthwork is occurring.

Hazardous material: Any material that poses a threat to human health and/or the environment. Hazardous materials are typically toxic, corrosive, ignitable, explosive, or chemically reactive.

Historic property: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Impacts: see Effects.

Impervious surface: A hard surface area that either prevents or retards the entry of water into the soil or causes water to run off the surface in greater quantities or at an increased rate of flow. Common impervious surfaces include, but are not limited to, rooftops, walkways, patios, driveways, parking lots, storage areas, concrete or asphalt paving, and gravel roads.

National Ambient Air Quality Standards (NAAQS): Standards defining the highest allowable levels of certain pollutants in the ambient air (i.e., the outdoor air to which the public has access). Primary standards are established to protect public health; secondary standards are established to protect public welfare (for example, visibility, crops, animals, buildings).

National Pollutant Discharge Elimination System (NPDES): A provision of the *Clean Water Act* that prohibits discharge of pollutants into waters of the United States unless a special permit is issued by the Environmental Protection Agency, a state, or, where delegated, a tribal government on an Indian reservation.

National Register of Historic Places: The nation's inventory of known historic properties that have been formally listed by the National Park Service (NPS). The National Register of Historic Places is administered by the NPS on the behalf of the Secretary of the Interior. National Register listings include districts, landscapes, sites, buildings, structures, and objects that meet the set of criteria found in 36 CFR 60.4.

No Action Alternative: The alternative where current conditions and trends are projected into the future without another proposed action.

Particulate matter (PM), PM_{10}, $PM_{2.5}$: Any finely divided solid or liquid material, other than uncombined (that is, pure) water. A subscript denotes the upper limit of the diameter of particles included. Thus, PM_{10} includes only those particles equal to or less than 10 micrometers (0.0004 inch) in diameter; $PM_{2.5}$ includes only those particles equal to or less than 2.5 micrometers (0.0001 inch) in diameter.

Proposed action: In a NEPA document, this is the primary action being considered. Its impacts are analyzed together with the impacts from alternative ways to achieve the same objective and the required no action alternative, which means continuing with the status quo.

Runoff: The portion of rainfall, melted snow, or irrigation water that flows across ground surface and is eventually returned to streams. Runoff can pick up pollutants from the air or the land and carry them to streams, lakes, and oceans.

Scope: Consists of the range of actions, alternatives, and impacts to be considered in an environmental analysis. The scope of an individual statement may depend on its relationships to other statements (also see tiering).

Scoping: An early and open process for determining the extent and variety of issues to be addressed and for identifying the significant issues related to a proposed action (40 CFR §1501.7). The scoping process helps not only to identify significant environmental issues deserving of study, but also to deemphasize insignificant issues, narrowing the scope of the NEPA process accordingly, and for early identification of what are and what are not the real issues (40CFR §1500.5(d)). The scoping process identifies relevant issues related to a proposed action through the involvement of all potentially interested or affected parties (affected federal, state, and local agencies; recognized Indian tribes; interest groups, and other interested persons) in the environmental analysis and documentation.

Significantly: As used in NEPA, requires considerations of both context and intensity. *Context*—significance of an action must be analyzed in its current and proposed short- and long-term effects on the whole of a given resource (for example, affected region). *Intensity*—refers to the severity of the effect.

Solid waste: Non-liquid, non-soluble materials ranging from municipal garbage to industrial wastes that contain complex and sometimes hazardous substances. Solid wastes also include sewage sludge, agricultural refuse, demolition wastes, and mining residues. Technically, solid waste also refers to liquids and gases in containers.

Wetlands: Those areas that are inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances do, or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas.

Jurisdictional wetlands are those wetlands protected by the *Clean Water Act*. They must have a minimum of one positive wetland indicator from each parameter (vegetation, soil, and hydrology). The U.S. Army Corps of Engineers requires a permit to fill or dredge jurisdictional wetlands.

APPENDICES

Appendix A – Supporting Background Documents
Appendix B – Agency Coordination and Communication Records
Appendix C – Public Information Outreach and Communication Records

(If requested, selected appendices can be provided in Spanish)

Appendix A – Supporting Background Documents

- AECOM 2015 Wetland Delineation Report
- CSA 2015 Flora and Fauna Study

Appendix B – Agency Coordination and Communication Records

Appendix C – Public Information Outreach and Communication Records