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Supplemental Environmental Assessment: Proposed Construction and Operation of the Phase 4 Expansion Massachusetts National Cemetery Bourne, Barnstable County, Massachusetts

U.S. Department of Veterans Affairs
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EXECUTIVE SUMMARY

In this Supplemental 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 implement the Phase 4 Expansion as described in the 2018 Master Plan at the Massachusetts National Cemetery (MNC) located at Connery Avenue, Bourne, Barnstable County, Massachusetts.

MNC covers approximately 750 acres, of which approximately 250 acres were developed for cemetery phases 1, 2, and 3, between 1979 and 2013, providing a total of 60 burial sections, memorial areas, a public information center/administration building, a maintenance facility, roadways, irrigation systems, and other supporting infrastructure.

Due to depletion of the existing gravesite capacity, VA has determined that if new burial capacity is not added, then the longevity of MNC would not be extended and future generations of eligible Veterans and their families increasingly would not have long-term, reasonable access to burial benefits at a National Cemetery in the southeastern Massachusetts region. All other National Cemeteries are more than 75 miles from southeastern Massachusetts, and, therefore, are not located within a reasonable distance of Veterans and their families in this region.

Purpose and Need

The ***purpose*** of the Proposed Action is to enable NCA to extend by approximately 10 years the longevity of interment benefits to eligible Veterans and their families by increasing interment capacity at MNC.

The Proposed Action is ***needed*** due to gravesite depletion resulting in limited interment capacity at MNC.

Alternatives

VA prepared this SEA to evaluate the potential impacts of implementing the Proposed Action. This SEA also evaluates the potential impact of a "No Action" alternative, defined as not implementing the Proposed Action and maintaining conditions at MNC as they currently exist. These two alternatives are summarized below:

- The ***Proposed Action*** is to implement the Phase 4 expansion as described in 2018 Master Plan. Under the Proposed Action, Phase 4 would be constructed over the next approximately 18 months. The Phase 4 expansion would provide new burial sections, new roadways, a new maintenance outbuilding, and associated improvements to existing physical infrastructure including the public information center/administration building, maintenance complex buildings, roadways, irrigation systems, and site furnishings. The Phase 4 expansion would provide approximately 10 years of additional interment capacity at MNC. Thus, the Proposed Action meets the purpose and need for action. The need for subsequent, potential future expansion phases would be evaluated by VA every 8-10 years, with separate NEPA analyses completed prior to implementing any future phase.
- The ***No Action*** alternative is to maintain MNC as it presently exists and not implement the Phase 4 expansion. Under the No Action alternative, VA would not add new burial capacity or complete infrastructure improvements described for the Phase 4 expansion in the 2018 Master Plan. The longevity of MNC would not be extended, and future generations of

eligible Veterans and their families increasingly would not have long-term, reasonable access to burial benefits at a National Cemetery in the southeastern Massachusetts region. Accordingly, the No Action alternative does not meet the purpose and need for action.

Affected Environment and Environmental Consequences

The following table summarizes the potential environmental impacts associated with implementing the Proposed Action or the No Action alternative.

Resource / Issue	Proposed Action	No Action
Aesthetics	Short-term, direct, less-than-significant adverse impacts during construction due to the use and presence of heavy construction equipment for grading, road construction, and other improvements. Direct, long-term, moderately beneficial aesthetic impact from the expansion of the park-like setting in the Phase 4 expansion area.	None.
Air Quality	Short-term, direct, negligible, adverse impact from construction vehicle emissions and dust generation. Long-term, direct, negligible adverse impact from increased visitors and maintenance activities during operation.	None.
Cultural Resources	Potential for adverse impacts from inadvertently encountering previously unknown cultural resources. Implementation of inadvertent discovery plans and protocols would maintain potential impacts at less-than-significant levels.	None.
Geology, Topography, and Soils	No impact on geology. Long-term, direct, less-than-significant adverse impact on topography due to grading burial areas and roads. Short-term, direct, less-than-significant adverse impact on soil due to potential erosion during construction; short-term, direct, negligible adverse impact during operation due to soil erosion.	None.
Hydrology and Water Quality	Short-term, direct, negligible, adverse impact on surface water during construction from potential sedimentation of runoff, and negligible impact during operation. Long-term, direct, negligible adverse impact during operation from increased use of groundwater to supply irrigation water.	None.
Wildlife and Habitat	Short- and long-term, direct, less-than-significant adverse impacts on terrestrial wildlife species and habitat due to disturbance during construction and long-term conversion of habitat to landscaped grounds. No impact to listed species due to avoidance measures.	None.
Noise	Short-term, direct, less-than-significant adverse impact from construction noise on visitors and off-site receptors. Short-term, direct, negligible adverse impacts from operational maintenance activities within the Phase 4 expansion area.	None.
Land Use	No impact. The Phase 4 expansion area is within MNC property, owned by the federal government and designated for cemetery use.	None.
Wetlands, Floodplains, and Coastal Zone Management	Long-term, direct, less-than-significant adverse impacts to wetlands from filling in the 0.09-acre isolated freshwater wetland adjacent to the maintenance complex for construction of the new vehicle storage building. Proposed Action is outside of 100- and 500-year floodplains and not subject to Massachusetts coastal zone review.	None.

Resource / Issue	Proposed Action	No Action
Socioeconomics	Short-term, direct, less-than-significant beneficial impact on the local economy from construction employment and material purchases. Long-term, direct and indirect, negligible beneficial impact during operations from increased visitors, potential increase in spending on area services, and minimized visitors' travel costs.	Negligible adverse impact due to increased costs for families and visitors once existing burial capacity is reached at MNC, requiring burial at a private cemetery or travel to a National Cemetery outside of southeastern MA.
Community Services	Long-term, direct, significant beneficial impact due to increased MNC burial capacity and longevity.	Long-term, direct, significant adverse impact due to lack of burial opportunities at MNC or another National Cemetery within 75 miles of southeastern Massachusetts.
Solid Waste and Hazardous Materials	Short-term, direct, negligible adverse impacts from generation of construction debris. Long-term, direct, negligible adverse impact from continued generation of operational solid wastes, excess soils, and pesticide/herbicide applications during routine operational maintenance activities.	None.
Transportation and Parking	Short-term, direct, negligible adverse impact on transportation and parking during the construction phase. Long-term, direct, moderate beneficial impact from expanded parking within MNC and new maintenance entrance in the northwestern portion of MNC.	None.
Utilities	Increase in extraction of groundwater to supply irrigation water would have a long-term, less-than-significant impact on this resource.	None.
Environmental Justice	No impact; no environmental justice communities within area.	None.
Potential for Generating Substantial Controversy	The Proposed Action is anticipated to be widely accepted in the community, because it would extend the longevity of MNC for approximately 10 years, allowing MNC to continue providing burial benefits to eligible Veterans and their families in the southeastern Massachusetts region.	Not expanding MNC conflicts with anticipated community expectations and therefore could generate substantial controversy.

The impacts from the Proposed Action, when considered on a cumulative basis with impacts from past projects and probable future projects at and in vicinity of MNC, remain at less-than-significant adverse levels for all of the environmental resources analyzed in this SEA. Impacts from the No Action alternative would remain significant and adverse due to the cumulative effects of the unmitigated impact on Community Services associated with a decrease in the longevity of MNC and a lack of burial opportunities at a National Cemetery in the southeastern Massachusetts region.

Agency and Public Involvement

VA invites public participation in decision-making on new proposals through the NEPA process. Public participation with respect to decision-making on the Proposed Action is guided by 38 CFR Part 26, VA's policy for implementing the NEPA. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. Agencies, organizations, and members of the public with a potential interest in the Proposed Action, such as minority, low-income, and disadvantaged persons, are urged to participate.

Comments received during the 30-day comment period on the Draft SEA will be documented and addressed in the Final SEA.

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

TABLE OF CONTENTS V

ACRONYMS AND ABBREVIATIONS VIII

1 INTRODUCTION 1

1.1 BACKGROUND AND EXISTING SITE DETAILS 1
1.1.1 Location 1
1.1.2 Development History 3
1.2 CURRENT STATUS 3
1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION 4
1.4 REGULATORY REQUIREMENTS 4
1.5 SCOPE OF THE ANALYSIS 5
1.6 DECISION MAKING 5

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES 6

2.1 DEVELOPMENT OF ALTERNATIVES 6
2.2 PROPOSED ACTION 6
2.3 NO ACTION ALTERNATIVE 11
2.3 ALTERNATIVES IDENTIFIED BUT NOT EVALUATED IN DETAIL 11

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 15

3.1 CRITERIA FOR ANALYSIS OF IMPACTS 15
3.2 RESOURCES NOT EVALUATED IN THIS SEA 15
3.3 AESTHETICS 16
3.3.1 Existing Environment 16
3.3.2 Environmental Consequences 17
3.4 AIR QUALITY 18
3.4.1 Regional Climate 18
3.4.2 Air Quality Standards 18
3.4.3 Existing Emissions Sources 19
3.4.4 Sensitive Receptors 19
3.4.5 Environmental Consequences 19
3.5 CULTURAL RESOURCES 22
3.5.1 Existing Environment 22
3.5.2 Environmental Consequences 23
3.6 GEOLOGY, TOPOGRAPHY, AND SOILS 24
3.6.1 Existing Environment 24
3.6.2 Environmental Consequences 31
3.7 HYDROLOGY AND WATER QUALITY 32
3.7.1 Existing Environment 32
3.7.2 Environmental Consequences 34
3.8 WILDLIFE AND HABITAT 38
3.8.1 Existing Environment 38
3.8.2 Environmental Consequences 43

3.9 NOISE 45
3.9.1 Existing Environment *46*
3.9.2 Environmental Consequences *46*
3.10 FLOODPLAINS, WETLANDS, AND COASTAL ZONE MANAGEMENT 47
3.10.1 Existing Environment *47*
3.10.2 Environmental Consequences *55*
3.11 SOCIOECONOMICS 56
3.11.1 Existing Environment *56*
3.11.2 Environmental Consequences *56*
3.12 COMMUNITY SERVICES 57
3.12.1 Existing Environment *57*
3.12.2 Environmental Consequences *57*
3.13 SOLID WASTE AND HAZARDOUS MATERIALS 58
3.13.1 Existing Environment *58*
3.13.2 Environmental Consequences *58*
3.14 TRANSPORTATION AND PARKING 59
3.14.1 Existing Environment *59*
3.14.2 Environmental Consequences *60*
3.15 UTILITIES 61
3.15.1 Existing Environment *61*
3.15.2 Environmental Consequences *62*
3.16 ENVIRONMENTAL JUSTICE 63
3.16.1 Existing Environment *63*
3.16.2 Environmental Consequences *63*

4 CUMULATIVE IMPACTS 65

4.1 PROPOSED ACTION 65
4.2 PROJECTS CONSIDERED FOR POTENTIAL CUMULATIVE IMPACTS 65
4.3 EFFECTS OF CUMULATIVE ACTIONS WITH THE PROPOSED ACTION 66
4.4 EFFECTS OF CUMULATIVE ACTIONS WITH THE NO ACTION ALTERNATIVE 68
4.5 POTENTIAL FOR GENERATING SUBSTANTIAL CONTROVERSY 68

5 AGENCY COORDINATION AND PUBLIC INVOLVEMENT 69

5.1 FEDERAL, STATE, AND LOCAL AGENCY COORDINATION 69
5.2 NATIVE AMERICAN TRIBAL COORDINATION 69
5.3 PUBLIC INVOLVEMENT 69

6 BEST MANAGEMENT PRACTICES AND MONITORING 70

7 ENVIRONMENTAL PERMITS, APPROVALS, AND DETERMINATIONS POTENTIALLY REQUIRED 74

8 LIST OF PREPARERS 76

9 ORGANIZATIONS CONSULTED 77

10 REFERENCES 78

11 GLOSSARY 80

TABLES

Table 1. Total Suspended Particulates 20
Table 2. Estimated Total Operational Hours for Construction Equipment 20
Table 3. SCAB Fleet Average Emission Factors (Diesel) 20
Table 4. Total Criteria Pollutant Emissions from Non-Road Construction Vehicles 21
Table 5. Soil Map Units within MNC 29
Table 6. Listed Species Potentially Occurring at MNC 38
Table 7. Migratory Birds Potentially Occurring within MNC Region 42
Table 8. Common Household, Industrial, and Construction Sound Levels 45
Table 9. Demographic Data for Barnstable County and Commonwealth of Massachusetts 56
Table 10. Economic Data for Barnstable County and the Commonwealth of Massachusetts 56
Table 11. Average Annual Daily Traffic Volume for Area Roadways 60
Table 12. Minority and Low-Income Populations 63

FIGURES

Figure 1. MNC Site Location 2
Figure 2. Proposed 2018 Master Plan Development 9
Figure 3. Maintenance Complex Expansion 10
Figure 4. Master Plan Alternative A 12
Figure 5. Master Plan Alternative B 13
Figure 6. Master Plan Alternative C 14
Figure 7. Topography of MNC 25
Figure 8. Existing Slopes at MNC 26
Figure 9. Soil Types within MNC 30
Figure 10. Landfill-1 Plume Map 35
Figure 11. Wetlands within MNC 51
Figure 12. Floodplain Map 53
Figure 13. Massachusetts Coastal Zone Map 54

APPENDICES

Appendix A – Environmental Survey Reports

Appendix B – Regulatory Communications

Appendix C – Public Involvement

ACRONYMS AND ABBREVIATIONS

AADT	annual average daily traffic
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
AIRFA	American Indian Religious Freedom Act
amsl	above mean sea level
APE	area of potential effect
AQCR	Air Quality Control Region
ARPA	Archaeological Resources Protection Act
AST	above ground storage tank
ASTM	American Society for Testing and Materials
BCC	Birds of Conservation Concern
BHP	Bureau of Historic Preservation
BMP	best management practice
CAA	Clean Air Act
CCRTA	Cape Cod Regional Transit Authority
CEC	Civil & Environmental Consultants, Inc.
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CCI_4	carbon tetrachloride
CO	carbon monoxide
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
dBA	A-weighted decibel
DEP	Department of Environmental Protection
EA	environmental assessment
EBT	eastern box turtle
EIS	environmental impact statement
EISA	Energy Independence and Security Act
EO	executive order
ESA	Endangered Species Act
FEIS	final environmental impact statement
FEMA	Federal Emergency Management Agency
FFA	Federal Facility Agreement
FHWA	Federal Highway Administration
FONSI	finding of no significant impact
GCR	General Conformity Rule
GPM	gallons per minute
JBCC	Joint Base Cape Cod
JD	Jurisdictional Determination
LF-1	Landfill-1
MA DEP	Massachusetts Department of Environmental Protection
MBTA	Migratory Bird Treaty Act
MESA	Massachusetts Endangered Species Act
MHC	Massachusetts Historical Commission

MNC	Massachusetts National Cemetery
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NCA	National Cemetery Administration
NEPA	National Environmental Policy Act
NHESP	Natural Heritage and Endangered Species Program
NHPA	National Historic Preservation Act
NLEB	northern long eared bat
NO_2	nitrogen dioxide
NOA	notice of availability
NOAA	National Oceanic and Atmospheric Administration
NOI	notice of intent
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O_3	ozone
OCFM	VA Office of Construction and Facility Management
OSHA	Occupational Safety and Health Administration
Pb	lead
PCE	perchloroethene
PEM	palustrine emergent
PFO	palustrine forested
PM	particulate matter
PNF	project notification form
RCRA	Resource Conservation and Recovery Act
RDA	Request for determination of applicability
RPW	relatively permanent water
SEA	supplemental environmental assessment
SESC	soil erosion and sedimentation control
SHPO	State Historic Preservation Office
SIP	state implementation plan
SO_2	sulfur dioxide
SR	state route
SWPPP	stormwater pollution prevention plan
TCE	trichloroethene
TNW	traditionally navigable water
U.S.	United States
USACE	US Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
USGS	United States Geological Survey
VA	US Department of Veterans Affairs
VOC	volatile organic compounds

1 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 136 National Cemeteries, and 33 soldiers' lots and monument sites in 40 states and Puerto Rico (NCA, 2018). VA's Office of Construction and Facility Management's (OCFM) mission 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. This Supplemental Environmental Assessment (SEA) evaluates the proposed implementation of the Phase 4 expansion as described in the 2018 Master Plan for the Massachusetts National Cemetery (MNC), located at Connery Avenue, Bourne, Barnstable County, Massachusetts.

1.1 Background and Existing Site Details

1.1.1 Location

MNC is located on the western end of Cape Cod, approximately 65 miles southeast from Boston, MA, and 60 miles east of Providence, Rhode Island (RI) (Figure 1). MNC serves eligible Veterans in the southeastern Massachusetts region. MNC is located within the town of Bourne in Barnstable County, MA. MNC covers approximately 750 acres and is adjacent to Otis National Guard Base and Camp Edwards Military Reservation on the Joint Base Cape Cod (JBCC). MNC is accessible from Connery Avenue, which runs along the northern border of MNC and also provides access to JBCC. Massachusetts State Route (SR) 28 runs perpendicular to Connery Avenue and borders MNC to the west. Approximately 250 acres of the 750-total acreage of MNC have been developed, leaving approximately 500 acres available for future development.

Figure 1. MNC Site Location

1.1.2 Development History

In 1976, VA prepared an environmental assessment (EA) to analyze the potential environmental and socioeconomic impacts of a proposed action to select, construct and operate a new National Cemetery on the approximately 750-acre site that, at the time, was owned by the Commonwealth of Massachusetts. The EA concluded that no significant impacts on the human environment would occur due to construction or operation of a National Cemetery at the site. Subsequently, the Commonwealth of Massachusetts and VA signed a land transfer agreement in 1976 to transfer ownership of the 750-acre site to VA for development as the new MNC. VA completed a Master Plan in 1976 that specified the layout and design for the phased development of the majority of the 750-acre property. Based on the 1976 Master Plan, VA in 1979 constructed the first development phase (Phase 1A), and in October 1980 MNC began accepting burials.

The initial Phases 1A and 1B were fully completed in 1982 and provided full casket burial sites, cortege lanes, an administration building, a maintenance complex, and a committal shelter loop to the east of the administration building. In 1996, VA completed the Phase 2 expansion to double the full casket burial capacity of MNC and provide a new columbarium plaza.

In 2009, VA anticipated that by November 2010, MNC would close to new casketed burial sites if additional burial capacity was not established (VA, 2010). Accordingly, in July 2010, VA completed an EA for the construction and operation of the Phase 3 expansion and concluded that implementing the expansion would have no significant adverse impacts on the environment (VA, 2010). In 2013, VA completed construction of the Phase 3 expansion, which provided approximately 9,600 casket gravesites, 1,000 in-ground cremation remains burial sites, and 4,500 cremation remains niches in two new columbarium areas within the western portion of MNC. The Phase 3 expansion also provided new public restrooms, a public information center, a new administration building, a new grounds maintenance building, and improvements to existing structures, roadways and utilities.

1.2 Current Status

VA projects that by fiscal year 2020, approximately 257,500 Veterans will reside within a 75-mile radius of MNC (VA, 2010). Based on current capacity at MNC, NCA projects gravesite depletion of casketed pre-placed crypt gravesites will occur by July 2025, in-ground cremation gravesite depletion by May 2020, and columbarium niche cremation site depletion by July 2031.

National Cemeteries located more than 75 miles from southeastern Massachusetts are considered to be located beyond a reasonable distance of Veterans and their families in this region. Currently, the closest National Cemetery to MNC is Calverton National Cemetery in Long Island, NY, 170 miles from MNC. The route to Calverton National Cemetery involves transport by ferry which increases the travel time beyond what is considered reasonable. The next closest is the Gerald B.H. Solomon Saratoga National Cemetery in Schuylerville, NY, approximately 240 miles from MNC. Three State Veteran Cemeteries located in Exeter, RI, Winchendon, MA, and Agawam, MA are open to Veteran burials; however, they are located approximately 80, 115, and 120 miles from MNC, respectively.

Although the 1976 Master Plan provided a design for potential future expansion phases, NCA design standards have since changed: they no longer based on primarily utilizing pre-placed full-sized crypts, but instead include more efficient casketed, double-depth, and pre-placed crypts. Therefore, selected elements of the 1976 Master Plan design are no longer appropriate for the

future development of MNC. Accordingly, VA prepared the 2018 Master Plan, which incorporates some elements of the original 1976 Master Plan while also meeting the latest NCA design standards. The 2018 Master Plan includes the design for the Phase 4 expansion.

1.3 Purpose and Need for the Proposed Action

Due to depletion of the existing gravesite capacity, VA determined that if new burial capacity is not added, then the longevity of MNC would not be extended and future generations of eligible Veterans and their families increasingly would not have long-term, reasonable access to burial benefits at a National Cemetery in the southeastern Massachusetts region. All other National Cemeteries are more than 75 miles from southeastern Massachusetts, and, therefore, are not located within a reasonable distance of Veterans and their families in this region.

Thus, the ***purpose*** of the Proposed Action is to enable NCA to extend by approximately 10 years the longevity of interment benefits to eligible Veterans and their families by increasing interment capacity at MNC.

The Proposed Action is ***needed*** due to gravesite depletion resulting in limited interment capacity at MNC.

1.4 Regulatory Requirements

The *National Environmental Policy Act* (NEPA) of 1969 established the national policy for the environment and the Council on Environmental Quality (CEQ) and provides for the consideration of environmental issues in federal agency planning and decision-making. To implement the NEPA policies, CEQ promulgated the *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR 1500-1508) (referred to as the CEQ Regulations).

VA's procedures to comply with NEPA are set forth in 38 CFR Part 26, *Environmental Effects of the Department of Veterans Affairs Actions*. These regulations establish the VA policies and responsibilities to integrate environmental considerations early in the decision-making process. Instructions on preparing NEPA documentation and carrying out public and agency coordination are provided in VA's *NEPA Interim Guidance for Projects* (VA, 2010).

These requirements specify that, prior to taking action, VA must evaluate the potential environmental impacts of VA facilities, operations, and related funding decisions. The evaluation of the potential environmental impacts of the proposed action and alternatives includes direct, indirect, and cumulative effects, as well as qualitative and quantitative (where possible) assessments of the level of significance of these effects. Additionally, as required by NEPA and the implementing regulations from CEQ and VA, the alternative of taking no action is also evaluated, providing a baseline for comparison of potential impacts from the action alternative(s).

An EA provides a sufficient level of analysis and evidence to evaluate if an action would cause a significant environmental impact. When the EA concludes there is no significant impact, VA may issue a finding of no significant impact (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 Part 1508.13). Conversely, when an EA finds that an action may have a significant adverse impact on the environment, VA would issue a notice of intent (NOI) to prepare an environmental impact statement (EIS).

1.5 Scope of the Analysis

This SEA has been prepared to analyze and evaluate the potential effects of the Proposed Action to implement the Phase 4 Expansion at MNC. Further details of the Proposed Action are provided in Section 2.0.

This SEA tiers to and supplements the analyses and findings presented in VA's 1976 EA for the siting, construction, and operation of MNC (VA, 1976). Information from the Phase 3 EA is also considered. This approach complies with CEQ Regulations that state that NEPA documents should be "analytic rather than encyclopedic" (40 CFR 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 1506.3), narrowing the discussion of these issues in the statement [SEA] 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 1501.7(a)(3)). Therefore, VA is using "Incorporation by Reference" per 40 CFR 1502.21 and "Tiering" per 40 CFR 1502.20 to reduce the volume of this SEA.

1.6 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 according to the regulations and guidance identified in this Section 1.0. As such, this SEA provides VA with the necessary analysis to address and support decision making for the Proposed Action and serves to:

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

As the decision document for this proposed federal undertaking, this SEA also identifies the actions to which VA would commit to minimize adverse environmental effects, as required under NEPA, its implementing regulations from CEQ (40 CFR 1500-1508) and VA (38 CFR 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 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

NEPA, and the regulations of CEQ and VA for implementing NEPA, require that an EA include a brief discussion of all reasonable alternatives, including at least the Proposed Action and the No Action alternative. This section summarizes the process used to develop alternatives and provides a description of the subsequently selected Proposed Action and its alternatives, as well as alternatives considered, but ultimately eliminated, from further analysis, and the reasons for elimination.

2.1 Development of Alternatives

As previously described, the original 1976 Master Plan was primarily based on utilizing pre-placed full-sized crypts. New NCA guidelines include more efficient casketed, double-depth, and pre-placed crypts. Accordingly, VA developed the 2018 Master Plan while retaining selected elements of the 1976 Master Plan that remained consistent with the new guidelines. The 2018 Master Plan provides the design for the Phase 4 expansion, which is evaluated in this SEA, as well as potential future expansion phases that would be analyzed under separate NEPA EAs should the need for a future phase be identified by VA. No other reasonable alternatives to the Phase 4 expansion that would meet the purpose and need for action were identified by VA. Thus, the Proposed Action and the No Action alternative are evaluated in this SEA.

2.2 Proposed Action

Under the Proposed Action, VA would implement the Phase 4 expansion according to the 2018 Master Plan (see Figure 2). The Phase 4 expansion would cover approximately 50 acres of currently undeveloped land, primarily in the central southern portion of MNC.

The Proposed Action for the Phase 4 expansion includes the following elements:

- Burial Expansion
  - To provide 10 years of continued burial benefits by providing approximately 12,000 gravesites, including both casket and cremation sites, in six new burial sections in the southern central portion of MNC. Gravesites include:
    - 4,000 pre-placed double depth crypt full casket gravesites
    - 300 over-sized pre-placed crypt full casket gravesites
    - 200 traditional full casket gravesites
    - 6,000 in-ground cremation sites
    - 1,500 columbarium niches
- Access Roads and Parking
  - Approximately 1.4 miles of new curbed access roads connecting the existing cemetery to the new burial sections.
  - Approximately 20 additional parking spaces at the administration building and maintenance complex to be used by cemetery staff and visitors.
  - A fourth cortege lane to improve efficiency and ease of access for funeral attendees and a cortege staging booth for volunteers to assist in directing funeral processions.

  - Paving and widening the service road within the northwestern portion of the property and installing signage and an entrance gate.
  - Widening the service drives at Committal Shelters 2 and 3 from 12 feet to 15 feet and increasing the turning radii of the drives to 30 feet.
- Committal Service Shelter Upgrades
  - Committal Shelter 1
    - Provide wind protection by installing dense evergreen plantings in the open lawn areas west and south of the shelter.
  - Committal Shelter 2
    - Provide wind protection by installing dense evergreen plantings in the open lawn area west of the shelter.
    - Widen the service drive to 15 feet and increase the turning radius to 30 feet.
  - Committal Shelter 3
    - Provide wind protection by installing a windscreen on the west side of the shelter and dense evergreen plantings in the open lawn areas west and south of the shelter.
    - Provide sound protection by installing additional dense evergreen plantings north of the shelter to dampen noise associated with operations at the maintenance complex.
  - Demolition of two unused committal shelters (A and B).
- Upgrades to Irrigation System
  - Extend irrigation system to new Phase 4 burial sites.
  - Evaluate and update, repair, and / or replace, as needed, existing irrigation pumping station and 0.5-million gallon irrigation water tank.
  - Install two new groundwater source wells to help provide irrigation water for the Phase 4 expansion area.
- Upgrades to the Maintenance Complex (Figure 3 provides the development plan for the maintenance complex expansion)
  - Construction of an approximately 13,000-square-foot enclosed vehicle equipment storage building to increase capacity for cemetery vehicle equipment storage. This structure would be built adjacent to the existing maintenance complex. Construction includes an approximately 300-foot long modular block retaining wall to stabilize the hill on the southeastern side of the new building.
  - Repair and replace the metal seam roof of the main maintenance building.
  - Redesign and expand the existing maintenance yard to improve functionality.
  - Expand the employee break area including the concrete slab and covered overhead shelter.

  - Construct additional material covered storage bins in the maintenance yard area.
  - Reconfigure entrance to the maintenance yard and create a new wash bay drive-thru with a manual swinging gate.
  - Provide seven new parking spaces.
  - Fill Wetland 1 (approximately 0.1 acres) and create a new approximately 0.1-acre stormwater management area to continue receiving stormwater runoff from the maintenance complex.
- Other
  - Construct a rostrum at the public assembly area.
  - Construct a three-bin material roof-covered and wall-enclosed storage facility at the satellite storage yard.
  - Restore and stabilize Columbaria A and B.
  - Renovate public restrooms.
  - Update and standardize site furnishings.
    - Replace six benches to match the existing metal style of other benches at MNC.
    - Replace all trash receptacle stations throughout MNC.
    - Repair damaged stone walls as needed

Figure 2. Proposed 2018 Master Plan Development

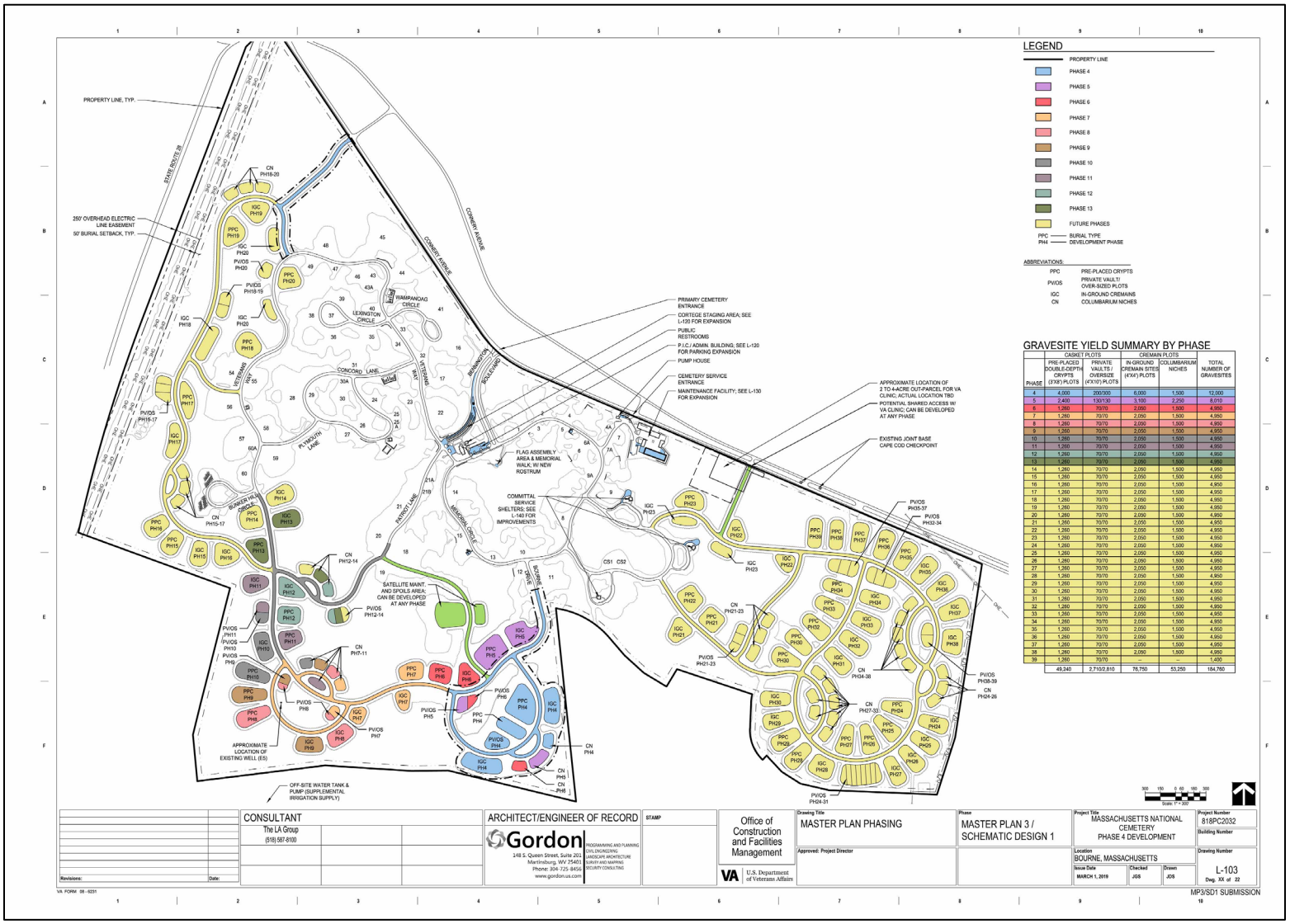
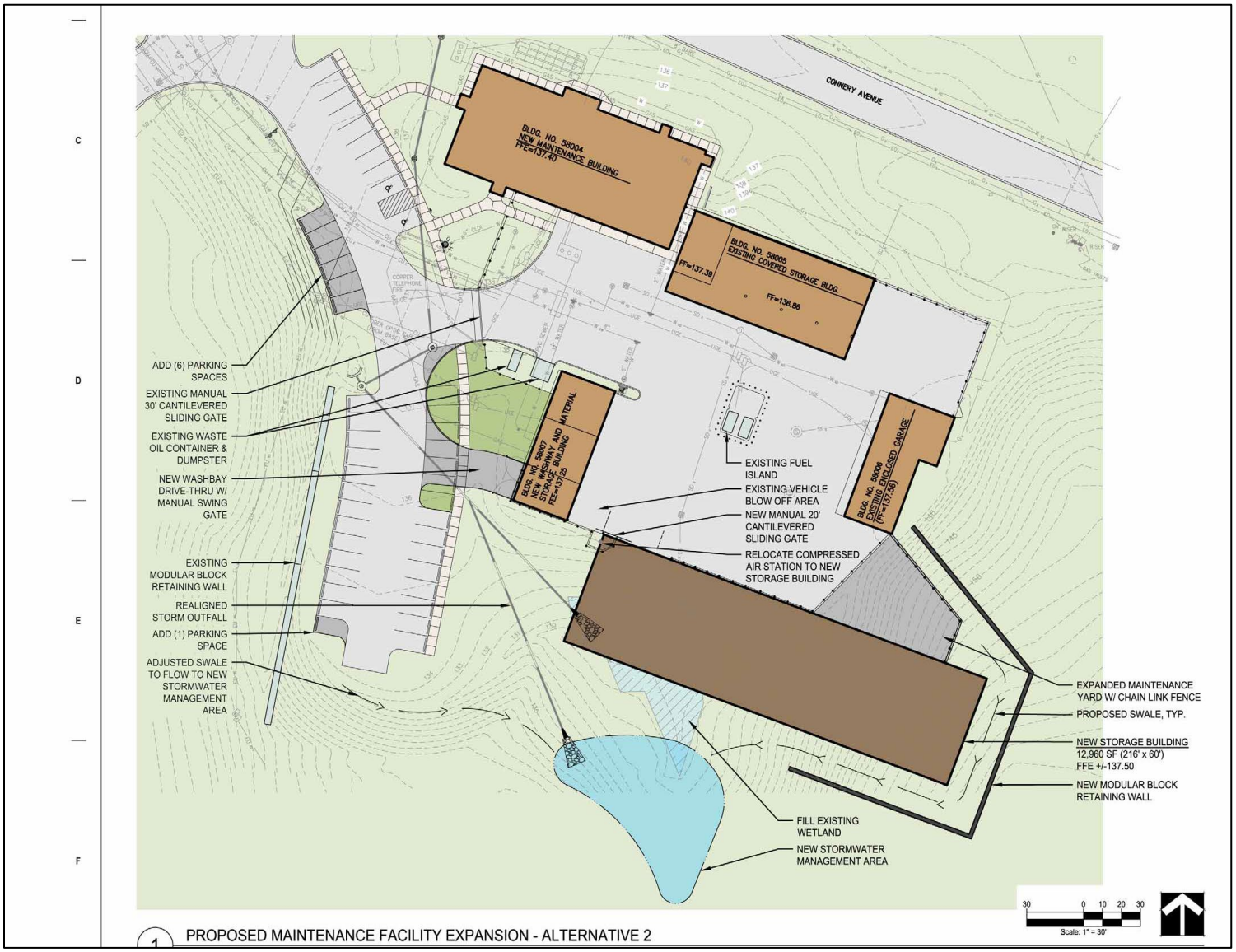


Figure 3. Maintenance Complex Expansion



2.3 No Action Alternative

The No Action alternative serves as a benchmark against which the effects of the Proposed Action can be evaluated, as required by CEQ regulations (40 CFR 1502.14). For this project, No Action is defined as not implementing the Proposed Action and retaining conditions at MNC as they currently exist for the foreseeable future.

The No Action alternative would challenge NCA's goal of continuing to provide eligible Veterans and their family members with reasonable access to VA burial options in the southeastern Massachusetts region, and therefore would not meet the purpose of and need for action.

Under the No Action alternative, long-term, reasonable access to burial benefits would not be provided to the estimated 340,000 Veterans living in Massachusetts and 257,000 Veterans residing within 75 miles of MNC (U.S. Census Bureau, 2018a). As previously described, the nearest National Cemeteries are more than 170 miles from southeastern Massachusetts. Therefore, Veterans and their families residing in the southeastern Massachusetts region would be underserved once MNC reaches full capacity. The No Action alternative would result in a hardship for survivors attending funerals or visiting gravesites at other National Cemeteries due to the distance between their homes and the cemeteries. If Veterans and their families must resort to private burials, they are deprived of the honor and privilege bestowed upon them by a grateful nation for their service to their country.

2.3 Alternatives Identified but Not Evaluated in Detail

During development of the 2018 Master Plan, three other conceptual design alternatives were considered for the potential future full buildout of the cemetery property, including the design of the Phase 4 expansion. These alternatives included similar construction and upgrades as the Proposed Action, but varied in the location and phasing of potential future expansion phases. The Phase 4 expansion was located in the northwestern portion of MNC under Alternative A (Figure 4); within the southwestern portion of MNC under Alternative B (Figure 5); and within the eastern portion, near the Committal Service Shelter loop, under Alternative C (Figure 6). These conceptual design alternatives did not efficiently utilize the currently undeveloped areas or minimize potential environmental impacts as effectively as the design ultimately presented in the 2018 Master Plan. Therefore, the conceptual design alternatives for the Phase 4 expansion are not further evaluated in this SEA. As previously described, VA will evaluate the need for potential future expansion phases every 8-10 years; separate NEPA-compliant analyses would be prepared prior to implementing any such future phase.

Figure 4. Master Plan Alternative A

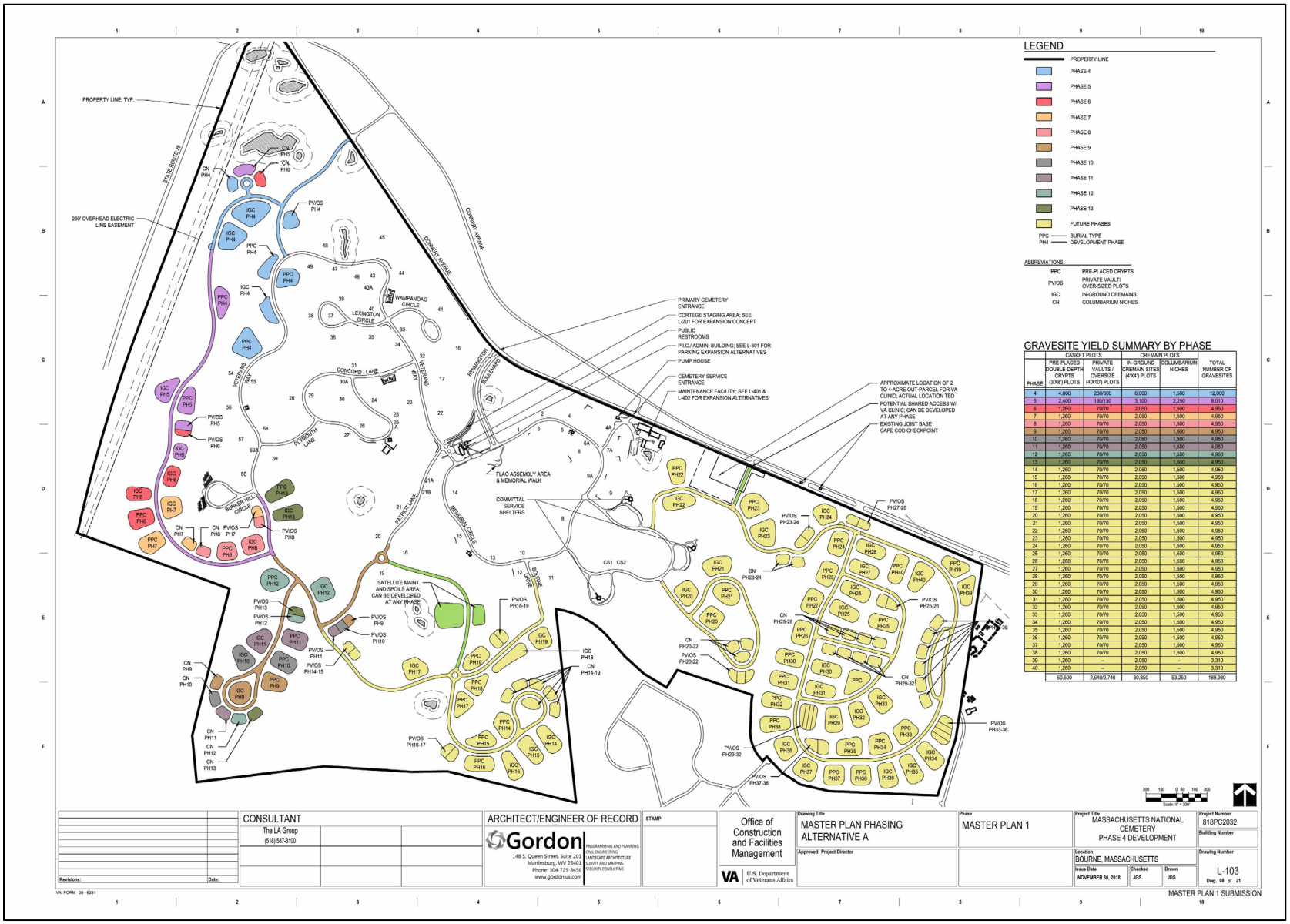


Figure 5. Master Plan Alternative B

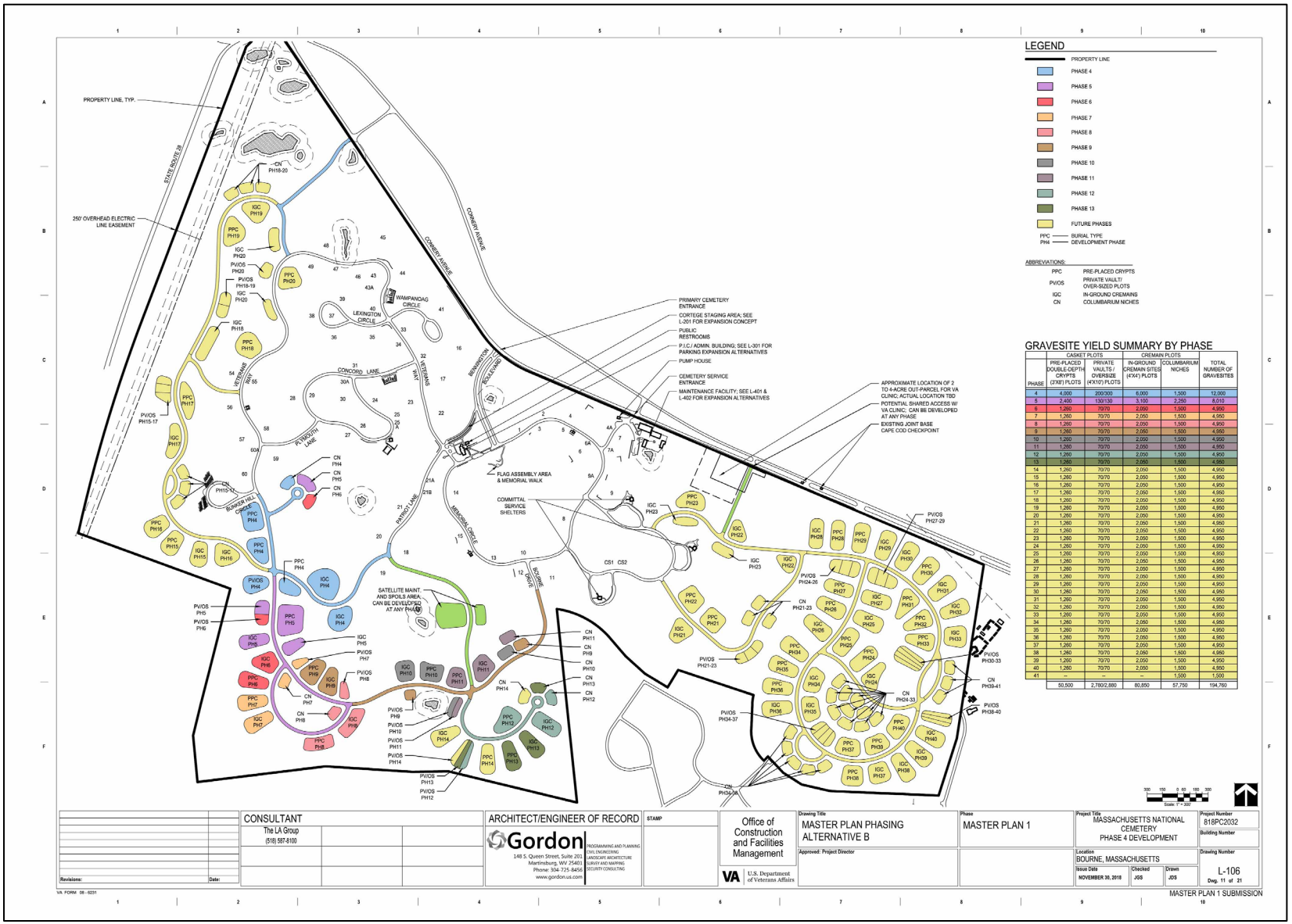
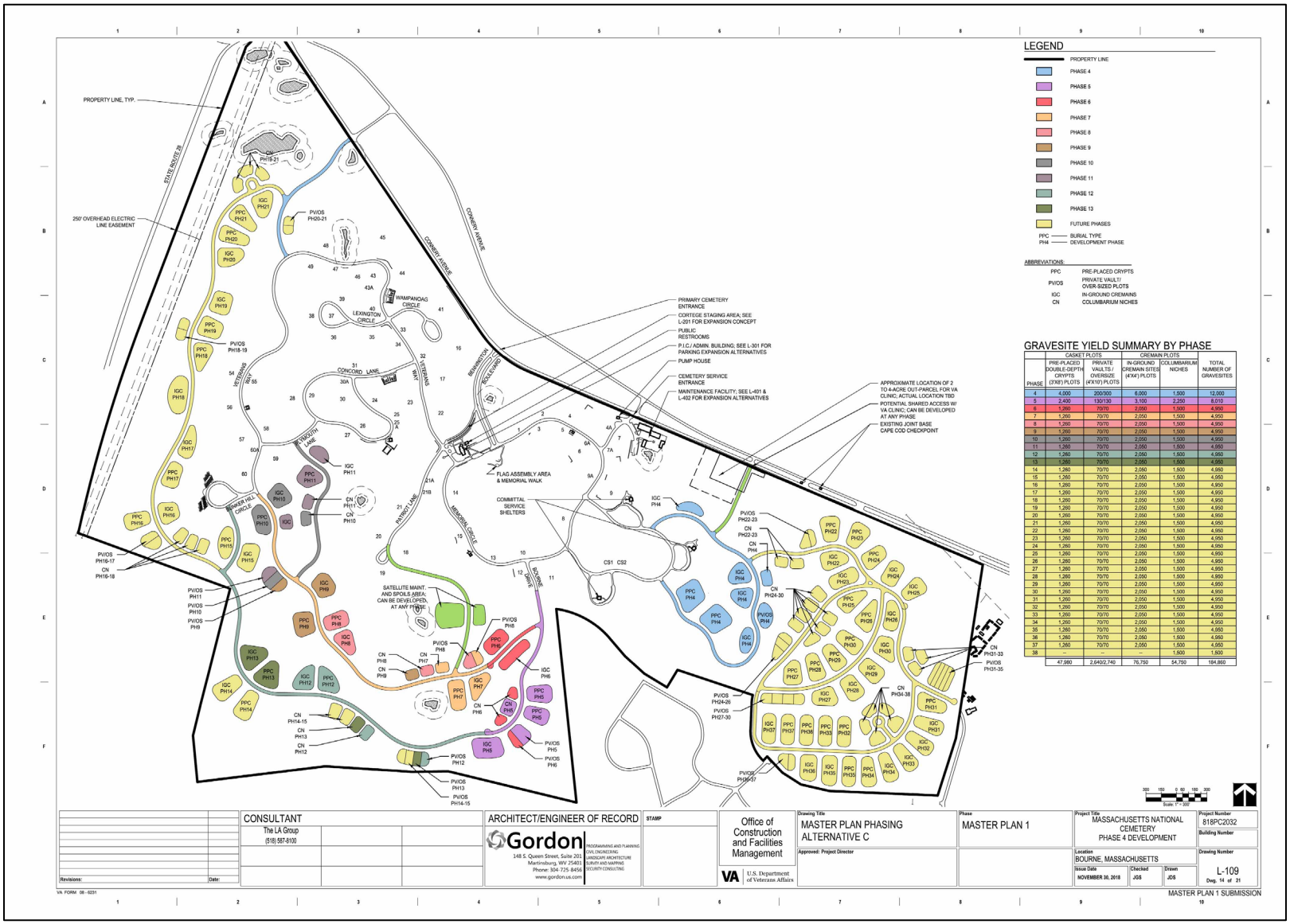


Figure 6. Master Plan Alternative C



PHASE	CASKET PLOTS: PRE-PLACED DOUBLE-DEPTH CRYPTS (7'X8') PLOTS	CASKET PLOTS: PRIVATE VAULTS / OVERSIZE (4'X10') PLOTS	CREMAIN PLOTS: IN-GROUND CREMAIN SITES (4'X4') PLOTS	CREMAIN PLOTS: COLUMBARIUM NICHES	TOTAL NUMBER OF GRAVESITES
4	4,000	200/300	6,000	1,500	12,000
5	2,400	130/130	3,100	2,250	8,010
6	1,260	70/70	2,050	1,500	4,950
7	1,260	70/70	2,050	1,500	4,950
8	1,260	70/70	2,050	1,500	4,950
9	1,260	70/70	2,050	1,500	4,950
10	1,260	70/70	2,050	1,500	4,950
11	1,260	70/70	2,050	1,500	4,950
12	1,260	70/70	2,050	1,500	4,950
13	1,260	70/70	2,050	1,500	4,950
14	1,260	70/70	2,050	1,500	4,950
15	1,260	70/70	2,050	1,500	4,950
16	1,260	70/70	2,050	1,500	4,950
17	1,260	70/70	2,050	1,500	4,950
18	1,260	70/70	2,050	1,500	4,950
19	1,260	70/70	2,050	1,500	4,950
20	1,260	70/70	2,050	1,500	4,950
21	1,260	70/70	2,050	1,500	4,950
22	1,260	70/70	2,050	1,500	4,950
23	1,260	70/70	2,050	1,500	4,950
24	1,260	70/70	2,050	1,500	4,950
25	1,260	70/70	2,050	1,500	4,950
26	1,260	70/70	2,050	1,500	4,950
27	1,260	70/70	2,050	1,500	4,950
28	1,260	70/70	2,050	1,500	4,950
29	1,260	70/70	2,050	1,500	4,950
30	1,260	70/70	2,050	1,500	4,950
31	1,260	70/70	2,050	1,500	4,950
32	1,260	70/70	2,050	1,500	4,950
33	1,260	70/70	2,050	1,500	4,950
34	1,260	70/70	2,050	1,500	4,950
35	1,260	70/70	2,050	1,500	4,950
36	1,260	70/70	2,050	1,500	4,950
37	1,260	70/70	2,050	1,500	4,950
38	--	--	--	1,500	1,500
	47,990	2,640/2,740	76,750	54,750	184,860

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Criteria for Analysis of Impacts

This section describes the existing conditions at MNC and presents an analysis of the potential environmental consequences of the Proposed Action and No Action alternative. Each alternative was evaluated for its potential impacts on physical, biological, and socioeconomic resources in accordance with the CEQ regulations at 40 CFR 1508.8.

The specific criteria for evaluating the potential environmental impacts of the Proposed Action and the No Action alternative are described in the following sections. The significance of an action is also measured in terms of its context and intensity. The potential environmental impacts are described in terms of duration, whether they are direct or indirect, the magnitude of the impact, and whether they are adverse or beneficial, as summarized in the following paragraphs:

Short-term or long-term. In general, short-term impacts are those that would occur only with respect to a particular time-lined activity, for a finite period, or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.

Direct or indirect. A direct impact is caused by an action and occurs around the same time at or near the location of the action. An indirect impact is caused by an action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action.

Less-than-significant (e.g. negligible, minor, moderate), or significant. These relative terms are used to characterize the magnitude or intensity of an impact. Negligible impacts are generally those that might be perceptible but are at the lower level of detection. A minor impact is slight, but detectable. A moderate impact is readily apparent. Significant impacts are those that, in their context and due to their magnitude (severity), have the potential to meet the thresholds for significance set forth in the CEQ regulations (40 CFR 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the policies set forth in NEPA. Significance criteria by resource area are presented in the following sections.

Adverse or beneficial. An adverse impact is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment.

3.2 Resources Not Evaluated in this SEA

VA determined that the land use/zoning resource areas were sufficiently analyzed in the 1976 EA for site selection (VA, 1976); therefore, this topic does not warrant further analysis in this SEA. According to the 2008 Town of Bourne Massachusetts Local Comprehensive Plan, the area encompassing MNC, including the entirety of the JBCC, is zoned as a Growth District (GD. However, since MNC and JBCC are operated on federally-owned land, the zoning designations of the Town of Bourne do not influence how the properties are used. Likewise, activities within MNC would not directly influence the zoning or land uses of other districts in Bourne, MA, or other communities within southeastern Massachusetts.

3.3 Aesthetics

3.3.1 Existing Environment

A combination of natural and built features influence and contribute to the aesthetic environment of an area. Natural features may include topography and vegetation, which themselves may have been altered over time by human action, while built features can include buildings and other constructed elements. Beneficial or adverse impacts may occur depending on how changes to the existing aesthetic environment are perceived by human receptors, which can include visitors and residents living adjacent to and in the vicinity of the area.

3.3.1.1 Surrounding MNC

The aesthetic character of the area surrounding MNC is influenced by roadways (SR 28 and Connery Avenue), forested areas, commercial properties along SR 28, residential neighborhoods west of SR 28, an electrical utility corridor along the western border of MNC and running parallel to SR 28, and the Otis National Guard Base and Camp Edwards Military Reservation within JBCC.

3.3.1.2 Within MNC

The overall appearance of MNC is aesthetically pleasing and resembles a park-like atmosphere within the setting of a National Shrine.

The existing topography of MNC consists of gently rolling hills and steep kettle hole depressions (indentations caused by glacial draining). The elevations of MNC range from 20 feet above mean sea level (amsl) to 220 feet amsl. Topography is analyzed in further detail in Section 3.6.

The northern portion of MNC is bordered by Connery Avenue. Bennington Boulevard serves as a formal entrance to MNC and connects to secondary roads that wind throughout the developed portions of MNC. Portions of MNC are visible from Connery Avenue, including the maintenance complex. However, much of MNC is blocked from view from Connery Avenue by dense forest.

Vegetation within MNC is consistent with the surrounding area and consists primarily of scrub-oak and pitch pine forest communities. MNC is also characterized by the highly maintained and manicured open grass, park-like areas of the developed gravesite sections. The primary landscape materials are turf, flat burial markers, shade and ornamental trees, shrubs, groundcovers, perennials, and bulbs.

Within MNC, gravesites are accessed by visitors and staff via a network of paved primary and secondary roads. There are also smaller unpaved service roads that are restricted for use to maintenance staff.

Existing structures at MNC include the maintenance complex, the administration building, the public restroom building, the irrigation well pumphouse, four columbarium structures, three committal service shelters, and several stone walls. An inventory and evaluation by VA of the site furnishings, stone walls, and columbaria A and B concluded that selected improvements to these features are needed to improve their appearance and thus the aesthetic value of MNC burial sections and resting places.

3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

Construction. During construction of the Phase 4 expansion, construction-related equipment would be present in the southern central portion of the cemetery and along the maintenance access road off Connery Avenue. Construction would require the presence and operation of heavy construction equipment used for clearing, grading, road construction, excavation for preplaced crypts, and other minor improvements. The heavy equipment phase of construction is anticipated to require no more than a total of 18 months and would not necessarily be one continuous period.

The presence of heavy equipment and unfinished stages of site preparation and construction would temporarily impact the visual quality of the southern central portion of MNC. However, there are no existing burial sections or publicly accessible areas within this portion of MNC. Thus, construction is unlikely to be visible to visitors. As needed, the construction contractor would install construction privacy fencing between the expansion area and the existing burial areas to reduce potential adverse visual impacts to visitors. Additionally, while the paving and widening of the service road within the northwestern portion of MNC would be visible to drivers on Connery Avenue, it would not be visible to most visitors within MNC, as the service road is located within a heavily wooded area within MNC that is not immediately visible from burial areas. Likewise, the construction of the new maintenance complex building would not be visible to visitors, as this area is surrounded by forest and located away from active burial areas.

Land clearing and grading activities would expose underlying soils and increase the potential for fugitive dust generation to the air and mud/dirt on MNC roadways and Connery Avenue, which could lead to nuisance concerns about the construction activities at MNC. To minimize these potential adverse impacts, the construction contractor would implement industry-standard construction best management practices (BMPs) to limit fugitive dust generation and tracking mud/dirt onto roadways. These BMPs include using water trucks for dust suppression, brushing soil off construction vehicle tires before leaving the construction site, and installing gravel pads at the construction exits to further prevent tracking of soil onto roadways. Following grading, exposed soils would be stabilized by native, non-invasive, vegetation planted by the construction contractor and maintained by MNC staff.

Therefore, the Proposed Action construction activities would have a short-term, direct, less-than-significant adverse impact on aesthetics within and surrounding MNC.

Operation. Operation of the Phase 4 cemetery would provide direct, long-term, moderately beneficial aesthetic effects within MNC. The Proposed Action would extend MNC's National Shrine, park-like appearance, with elements including professionally maintained landscaped grounds, winding roadways, and peaceful spaces for families and visitors to pay their respects.

Operations within the Phase 4 expansion area would include regularly scheduled professional landscape maintenance to ensure the upkeep of the park-like appearance of the cemetery grounds and associated physical infrastructure. These activities would be similar to current maintenance occurring daily at MNC and which have not caused any reported adverse aesthetic impacts. Additionally, maintenance activities within the Phase 4 expansion area would occur on a schedule that limits potential disruptions to committal services.

The Proposed Action would also include improvements to the existing columbarium structures, roads, signage, and site furnishings including standardizing signage and repairing rock walls. VA

would repair and replace benches to improve their longevity and standardize their appearance at MNC. Trash and flower vase receptacles would also be repaired and replaced, as necessary. Crumbling stone walls would be repaired, and stone wall types would be standardized, when possible, to better match similar walls elsewhere in Cape Cod.

The aesthetic appearance of columbaria A and B would be improved by the installation of additional seating and improved walkway access to the columbarium walls. This would create a more respectful and accessible space for contemplation and paying respects. Overall, these site improvements would increase the aesthetic value of the natural and built environments of MNC and provide a more peaceful, accessible, and respectful space for families and visitors.

3.3.2.2 No Action

Under the No Action alternative, no changes to the current aesthetic or visual character of the grounds would occur at MNC.

Although the less-than-significant adverse impacts associated with construction of the Proposed Action would be avoided, the beneficial impacts to aesthetics associated with operations would not occur. Site furnishings and rock walls would be allowed to continue falling into disrepair, and columbaria A and B would not be updated. Baseline conditions would remain as described above.

3.4 Air Quality

3.4.1 Regional Climate

Weather and climate are important influences on air resources. MNC is located in Barnstable County, MA, approximately two miles inland from Buzzards Bay and at elevations ranging from 20 to 220 amsl. The average summer (July) temperature is 73.0 degrees Fahrenheit (°F) with approximately 3.51 inches of rainfall, and the average winter (January) temperature is 26.5°F with approximately 4.02 inches of precipitation. December is the wettest month with an average of 4.52 inches of precipitation, while August is the driest month with an average of 3.13 inches of precipitation (NOAA, 2018).

3.4.2 Air Quality Standards

National Ambient Air Quality Standards. The *Clean Air Act* (CAA) and its subsequent amendments required the USEPA to establish National Ambient Air Quality Standards (NAAQS) for pollutants that may endanger public health or welfare. The USEPA has promulgated primary and secondary NAAQS for six criteria pollutants; carbon monoxide, nitrogen dioxide, ozone, lead, particulate matter (PM) including particulate matter sized 10 micrometers or less (PM_{10}) and particulate matter sized 2.5 micrometers or less ($PM_{2.5}$), and sulfur dioxide. Primary standards set limits to protect public health and secondary standards set limits to protect public welfare. The CAA also gives the authority to states to establish air quality rules and regulations stricter than the federal standards.

Bourne, MA, is under the jurisdiction of the MA DEP and falls within USEPA Air Quality Control Region (AQCR) 120, USEPA Region 1, and the MA DEP Southeast Region. The USEPA defines AQCRs, which are used to evaluate compliance with the NAAQS per the CAA. MNC property is specifically located within the Metropolitan Providence AQCR.

The General Conformity Rule (GCR) (CAA Part 176(c)(4)) applies to all federal actions in nonattainment or maintenance areas. This rule requires that any federal action meet the requirements of a state implementation plan (SIP) or federal implementation plan. More

specifically, CAA conformity is ensured when a federal action would not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS. AQCRs that comply with the NAAQS are designated "attainment" areas by the USEPA, while areas where the standards are not met are designated as "non-attainment" areas.

As of October 12, 2018, Barnstable County and all of Massachusetts is currently in attainment for all six criteria pollutants, except for Dukes County which is in marginal non-attainment for 8-Hour Ozone (based on the 2008 standard) (USEPA, 2018).

3.4.3 Existing Emissions Sources

Current emissions sources at MNC include gas-powered vehicles and maintenance equipment used to maintain the cemetery grounds, and staff and visitor vehicles.

3.4.4 Sensitive Receptors

CEQ's 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, hospitals, schools, convalescent facilities, and residential areas are sensitive receptors for air quality impacts, particularly when located within one mile from the emissions source.

There are four schools located within 1.5 miles of MNC: (1) Edward C. Stone Middle School, (2) Colonel James P. Lyle Middle School, (3) Otis Memorial School, and (4) Campbell School. One religious institution, the Cataumet Methodist Church, and one hospital, the Barnstable County Hospital, are located within 1.5 miles of MNC (NEPAssist, 2018). There are low-density residential areas located within one mile of MNC; the closest residences include U.S. Coast Guard housing located directly southwest of MNC, while civilian residential areas are located west of SR 28.

3.4.5 Environmental Consequences

3.4.5.1 Proposed Action

Construction. Construction of the Phase 4 expansion would require up to approximately 18 months of earthwork activities associated with grading, roadway realignment and construction, and installation of pre-placed crypts.

Construction would require heavy equipment with petroleum-fueled engines, resulting in emissions of criteria pollutants (with the exception of lead, which is no longer an additive in these fuels). Construction would also expose soils and generate particulate matter into the air from activities including clearing, grading, excavation, and vehicles traveling on unpaved surfaces.

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. As described in Section 3.3, construction BMPs generally including water or chemical dust suppression would be implemented to reduce fugitive dust generation and prevent it from becoming airborne.

Total suspended particulates were calculated using the emission factor for heavy construction activity operations from "AP-42, Compilation for Air Pollutant Emission Factors" (USEPA,

1995), to provide a conservative estimate of PM emissions. Estimates are shown in Table 1.

Table 1. Total Suspended Particulates

Total Area (acres)	Exposed Area (acres)	Construction Duration (months)	Emission Factor (tons/acre/month)[1]	Control Efficiency (%)	Total Suspended Particulate Emissions (tons/year)
50 (Phase 4)	50	18	1.2	80%	144.0

Non-road construction vehicles would emit criteria pollutants during construction of the Phase 4 expansion. Criteria pollution emissions from construction equipment were calculated assuming the use of six backhoes, two graders, and two bulldozers operating for approximately eight hours per day for a total of 390 weekdays (approximately 18 months). Emissions were estimated using "Off-Road – Model Mobile Source Emission Factors" from the California South Coast Air Quality Management District (SCAQMD, 2018) because Massachusetts and federal USEPA emission factors are not available. Table 2 and Table 3 show estimated annual emissions, projected equipment operating hours, and equipment emission factors, while Table 4 shows the total emissions for the 18-month construction period. Emissions of sulfur oxides, lead, nitrous oxides (NO_x), volatile organic compounds (VOC), and CO, are below *de minimis* thresholds, which are used in this analysis as an indicator of potential environmental impacts.

Table 2. Estimated Total Operational Hours for Construction Equipment

Equipment Type	Number	Hours/Day	Total Days	Total Hours
Grader	2	8	548	8,768
Tractors/Loaders/Backhoes	6	8	548	26,304
Rubber Tired Dozers	2	8	548	8,768

Table 3. SCAB Fleet Average Emission Factors (Diesel)

	Emission	Factors(1)					
Equipment Type	ROG(2) (lb/hr)	CO (lb/hr)	NO_x (lb/hr)	SO_x (lb/hr)	PM (lb/hr)	CO_2 (lb/hr)	CH_4 (lb/hr)
Graders	0.0982	0.5787	0.6490	0.0015	0.0316	133.0000	0.0108
Tractors/Loaders/Backhoes	0.0472	0.3630	0.3019	0.0008	0.0160	66.8000	0.0055
Rubber Tired Dozers	0.2227	0.8388	1.6948	0.0025	0.0682	239.0000	0.0234

1 – South Coast Air Basin (SCAQMD, 2018)
http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors,emission factor year 2019. Composite emission factor used.
2 - VOCs are assumed to be equivalent to Reactive Organic Gases (ROG) for calculating non-road construction equipment emissions.

Table 4. Total Criteria Pollutant Emissions from Non-Road Construction Vehicles

Equipment Type	Total Hours	ROG (total lbs)	CO (total lbs)	NO_x (total lbs)	SO_x (total lbs)	PM (total lbs)	CO_2 (total lbs)
Graders	8,768	861.02	5,074.04	5,690.43	13.12	277.31	1,166,144
Tractors/Loaders/ Backhoes	26,304	1,241.55	9,548.35	7,941.18	20.39	420.29	1,757,107
Rubber Tired Dozers	8,768	1,952.63	7,354.60	14,860.01	21.49	598.05	2,095,552
Total Pounds	--	4,055.20	21,976.99	28,491.62	55.00	1,295.65	5,018,803
Total Tons	--	2.03	10.99	14.25	0.03	0.65	2,509
Emissions (tons/year)	--	1.3505	7.3190	9.4885	0.0183	0.4315	1671.408
de minimis level[(1)] (tons/year)		100	100	100	100	100	N/A

1 – USEPA, 2018 (General Conformity de minimis table)

As shown in Table 4, construction emissions associated with the Phase 4 expansion, would be below the General Conformity *de minimis* thresholds for all criteria pollutants, indicating less-than-significant impacts to regional air quality. Additionally, because Barnstable County is in attainment, a General Conformity Determination is not required.

Construction of the Phase 4 expansion is not anticipated to require importing or exporting fill, because excavations would create a sufficient volume of excess soil for use as fill needed elsewhere at MNC.

To further minimize construction-related air emissions impacts, the following BMPs would be implemented in addition to those previously mentioned in Section 3.2:

- Utilize appropriate construction scheduling (avoid earthwork during extremely windy and dry periods).
- Stabilize exposed soil with vegetation or mulching to minimize erosion and potential dust generation.
- Construction vehicles traveling on paved roads within and outside of MNC would follow posted speed limits. This would minimize dust generated by vehicles and equipment on paved surfaces.
- On unpaved surfaces at the site, vehicle speeds would be maintained at or below five miles per hour to prevent dust generation of any exposed soil. Additionally, should any vehicles transport soil from one area of the property to another, the soil would be covered with haul tarps.
- Visually monitor construction activities daily, and particularly during extended periods of dry weather; implement additional dust control measures as needed.

Therefore, construction of the Proposed Action would result in short-term, direct, negligible adverse impacts on air quality.

Operation. Operational sources of air emissions would include visitors' vehicles and MNC maintenance equipment (mowers, backhoes, power washers, etc.) operating within the Phase 4 expansion area. The Proposed Action would result in an increase in visitor vehicle traffic and maintenance equipment operations in the new cemetery grounds. This increase in vehicle volume

and equipment usage would lead to a negligible increase in emissions. To further minimize emissions from operational maintenance activities, the maintenance equipment would be kept in good working order.

Operation of the Proposed Action would also extend the longevity of MNC. Thus, while emissions from visitor traffic would marginally increase in the immediate area of MNC, these visitors and families would not otherwise be required to travel longer distances to reach other National Cemeteries outside of the southeastern Massachusetts region. As a result, there would be an anticipated minimal decrease in emissions from visitors' vehicles.

Therefore, operation of the Proposed Action would result in long-term, direct, negligible adverse impacts on air quality.

3.4.5.2 No Action

Under the No Action alternative, there would be no short-term changes in air quality compared to current conditions. However, emissions associated with visitors and families traveling greater distance to reach other National Cemeteries would begin to increase once capacity at MNC was reached.

3.5 Cultural Resources

Section 106 of the *National Historic Preservation Act of 1966*, as amended (NHPA) (Pub. L. 89-655, 16 USC 470 et seq.), ensures that federal agencies consider cultural resources, defined as any prehistoric or historic district, site, building, structure, or object eligible for inclusion on the National Register of Historic Places (NRHP), in their proposed programs, projects, and actions prior to initiation.

Procedures for NHPA Section 106 compliance require federal agencies to identify historic properties within the proposed project's area of potential effect (APE) (36 CFR 800.4). The APE is the geographic area within which an undertaking, such as the Proposed Action, could directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking and might be different for different kinds of effects caused by the undertaking. The APE for this Proposed Action is the proposed Phase 4 expansion area. This APE is appropriate because the Proposed Action does not have mechanisms to disturb or influence areas immediately beyond the proposed Phase 4 expansion boundary.

3.5.1 Existing Environment

A review of the existing Bourne Historical Commission map of the area does not indicate the presence of historic or archaeological resources within the APE or elsewhere at the MNC property. Additionally, a review of the Massachusetts Cultural Resource Information System did not identify any known resources within the APE.

3.5.1.1 Section 106 Consultation

On May 15, 2019, VA submitted a Massachusetts Historical Commission (MHC) Project Notification Form (PNF) to MHC to initiate Section 106 consultation and request concurrence that the Proposed Action is unlikely to adversely affect significant historic or archaeological resources. Per MHC, if the State Historic Preservation Officer (SHPO) does not provide a response within 30 days, then the project may proceed as planned. VA did not receive a response from MHC within 30 days of submitting the PNF. Accordingly, based on the low probability of significant cultural

resources being present on the MNC property, VA anticipates that the Proposed Action would have no adverse effects to any significant historic or archaeological resources within the APE.

3.5.1.2 Native American Resources and Consultation.

For all federally proposed actions, federal agencies are required to consult with federally recognized Native American Tribes in accordance with NEPA, the NHPA, the *Native American Graves Protection and Repatriation Act* (NAGPRA), and Executive Order (EO) 13175, consultation and coordination with Indian Tribal Governments.

Three federally recognized Native American Tribes that may have historical ties to the area are the Mashpee Wampanoag Tribe of Massachusetts, the Wampanoag Tribe of Gay Head (Aquinnah) of Massachusetts (formerly Wampanoag Tribal Council of Gay Head, Inc.), and the Narragansett Indian Tribe of Rhode Island.

As part of the NEPA process for the currently proposed Phase 4 expansion, VA sent letters dated March 19, 2019 to the Wampanoag Tribe of Gay Head, the Mashpee Wampanoag Tribe, and the Narragansett Indian Tribe of Rhode Island to provide them the opportunity to comment on the Proposed Action. VA did not receive any responses from any of the federally recognized tribes within thirty days of sending the letters.

It is noted that during preparation of the 2010 EA for the Phase 3 expansion, none of the three Native American Tribes provided comment regarding the proposed Phase 3 expansion (VA, 2010).

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

Construction and Operation. As described above, no known cultural resource sites are located within the APE for the Proposed Action, and MHC did not provide a response to the PNF within 30 days. Therefore, VA has determined that the Proposed Action is unlikely to affect significant historic or archaeological resources.

However, some potential exists for disturbance of previously unknown archaeological resources during the construction and excavation actions. To minimize the potential impact on previously unknown resources during construction, VA would comply with the NHPA, *Archaeological Resources Protection Act of 1979* (ARPA), NAGPRA, *American Indian Religious Freedom Act* (AIRFA), 36 CFR Part 79, and EO 13007 Indian Sacred Sites.

Additionally, VA would implement an “Inadvertent Discovery” plan. Under this plan, if prehistoric or historic artifacts that could be associated with Native American, early European, or American settlement are encountered at any time within the expansion area, VA would cease all activities involving subsurface disturbance in the vicinity of the discovery. Should human remains or other cultural items, as defined by NAGPRA, be discovered during project construction, the construction contractor would immediately cease work until VA, a qualified archaeologist, the Mashpee Wampanoag Tribe, Wampanoag Tribe of Gay Head, the Narragansett Indian Tribe, and the MHC SHPO, are contacted to properly identify and appropriately treat discovered items in accordance with applicable state and federal law(s).

Implementation of these measures would ensure that potential impacts on cultural resources are maintained at less-than-significant adverse levels.

3.5.2.2 No Action

The No Action Alternative would result in no impact on cultural resources because expansion would not occur, leaving potential unknown cultural resources undisturbed.

3.6 Geology, Topography, and Soils

This section presents an overview of the geology, topography, and soils encompassing the MNC property and specifically, the proposed expansion area.

3.6.1 Existing Environment

3.6.1.1 Geology

MNC is located within the Buzzards Bay Moraine, a result of the most recent glacial period, which is characterized by stratified sands, gravels, and boulders. There are, additionally, small deposits of silt and clay. According to the Natural Resource Conservation Service (NRCS), the soils within the Phase 4 expansion area are predominantly Plymouth-Barnstable complexes.

3.6.1.2 Topography

Based on the U.S. Geological Survey (USGS) 7.5-minute topographical map (Pocassett 277822, effective 1979), the topography of MNC features gently rolling hills and occasional kettle hole depressions. The central portion of the MNC varies more in topography due to the rolling hills and kettle hole depressions concentrated in this area. The northwestern portion of MNC is relatively low in elevation and includes several wetland and surface water features. The eastern portion of MNC is relatively level compared to the rest of the property due to its location on an outwash plain and its former use as Army barracks and a VA hospital. In general, slopes throughout MNC range from 3 to 15 percent, with several areas having slopes greater than 15 percent. Associated elevations range from approximately 20 to 220 feet amsl. A topographic map is provided in Figure 7 and existing slopes are provided in Figure 8.

Figure 7. Topography of MNC

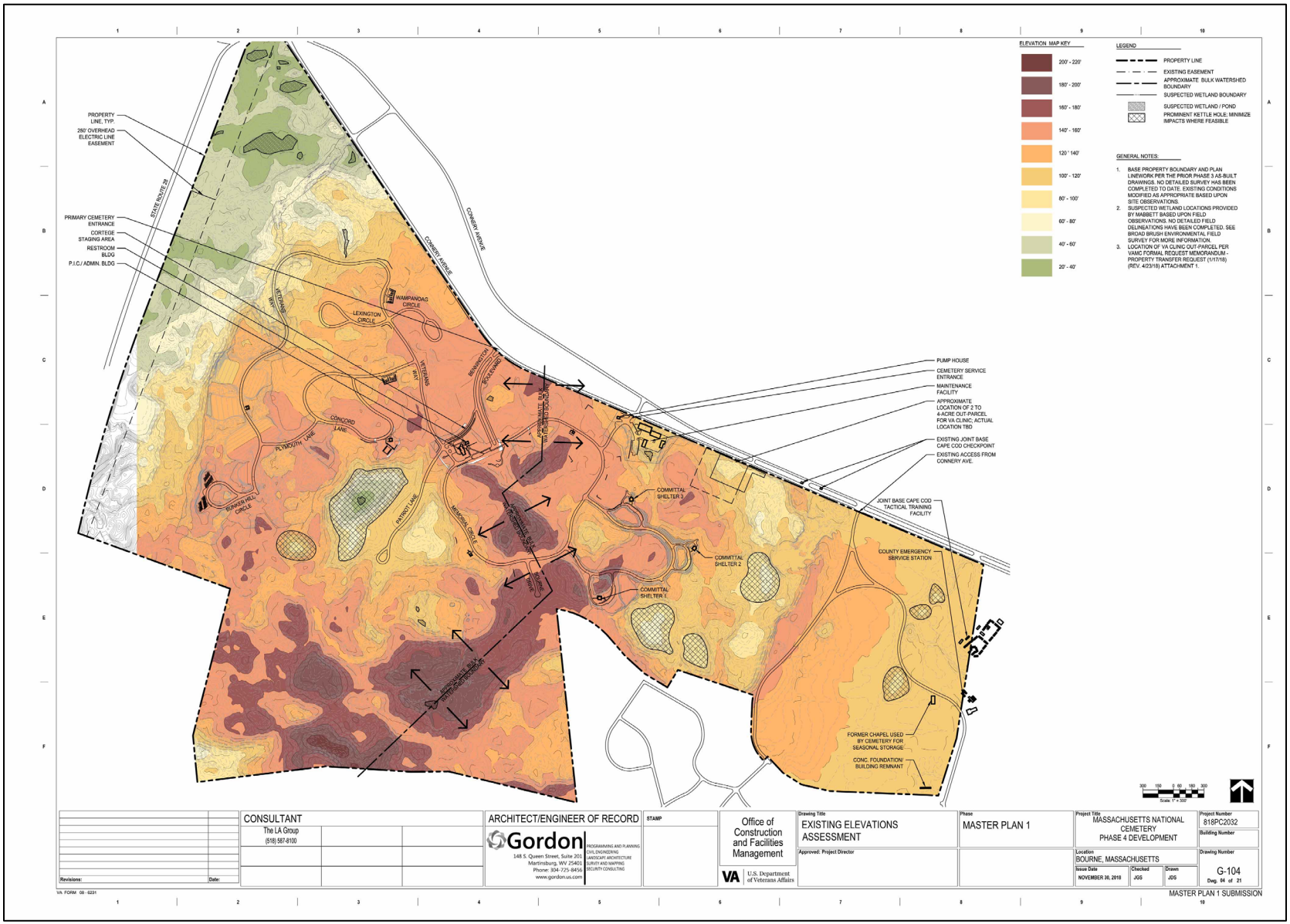
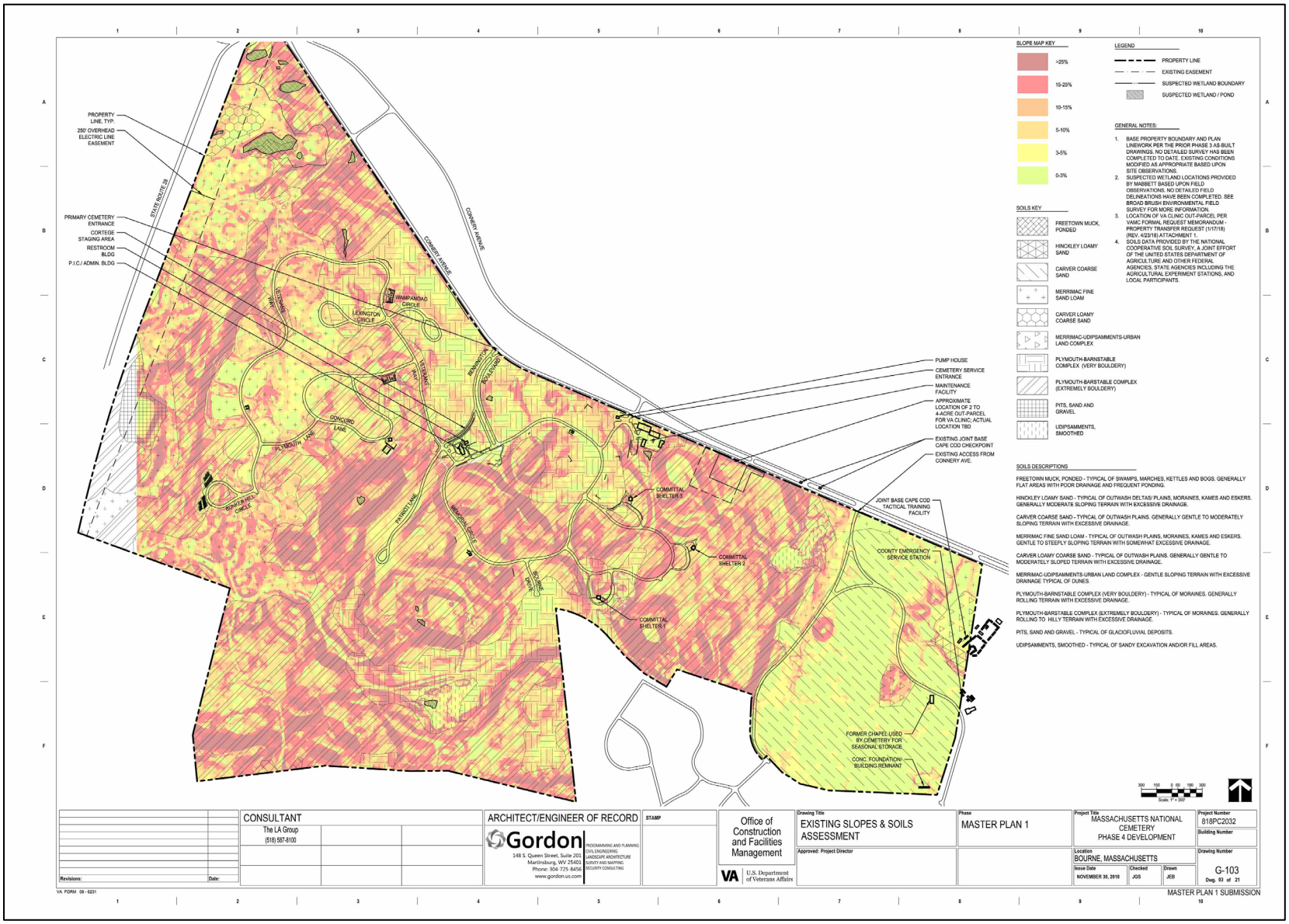


Figure 8. Existing Slopes at MNC



3.6.1.3 Soils

Soil information was obtained from NRCS (NRCS, 2018). The Plymouth Barnstable complex accounts for approximately 83 percent of all soils at MNC. These soils are generally deep, well drained to excessively drained sands or gravelly sands. They have a high rate of water transmission and a high infiltration rate. Slopes for this soil complex range from 0 to 35 percent. All soil units found within MNC boundary are listed in Table 5. The Phase 4 expansion area is predominantly made up of Plymouth-Barnstable complexes 484D and 483C. Locations of soil units within the MNC property are provided in Figure 9. Descriptions of the main soil types at MNC are provided in the following list:

- Plymouth-Barnstable complex (483C, 484C, 484D): These soils account for approximately 83.1 percent of MNC. The Plymouth-Barnstable complex sands consist of very deep, excessively drained soils formed in loose, sandy glaciofluvial deposits and/or loose, sandy ablation till. They are moderately sloping soils on moraines. Slopes range from 8 to 25 percent. These soils do not meet hydric criteria. Hydric soils are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.
- Merrimac-Udipsamments-Urban land complex (299C): This soil accounts for approximately 11.5 percent of MNC. The Merrimac-Udipsamments-Urban land complex soils consist of very deep, excessively drained soils formed in loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss. They are nearly level soils on moraines, outwash terraces, outwash plains, kames and eskers. Slopes range from 0 to 8 percent. These soils do not meet hydric criteria.
- Merrimac fine sandy loam (254B): This soil accounts for approximately 1.9 percent of MNC. The Merrimac fine sandy loam soils consist of very deep, somewhat excessively drained soils formed in loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss. They are nearly level through slightly sloping soils on moraines, outwash terraces, outwash plains, kames and eskers. Slopes range from 3 to 8 percent. These soils do not meet hydric criteria.
- Carver coarse sand (252C, 252D): This soil accounts for approximately 0.9 percent of MNC. The Carver coarse sand soils consist of very deep, excessively drained soils formed in loose sandy glaciofluvial deposits and sandy glaciofluvial deposits. They are moderately to steep sloping soils on ice-contact slopes. Slopes range from 8 to 35 percent. These soils do not meet hydric criteria.
- Carver loamy coarse sand (259B): This soil account for approximately 0.5 percent of MNC. The Carver loamy coarse sand soils consist of very deep, excessively drained soils formed in sandy glaciofluvial deposits. They are nearly level to moderately sloping soils on outwash plains and moraines. Slopes range from 3 to 8 percent. These soils do not meet hydric criteria.
- Freetown muck, ponded, coastal lowland (53A): This soil accounts for approximately 0.3 percent of MNC. The Freetown muck, ponded, coastal lowland soils consist of very deep, very poorly drained soils formed in highly decomposed organic material. They are nearly

level soils on bogs, marshes, kettles, depressions and swamps. Slopes range from 0 to 1 percent. These soils meet hydric criteria.

- Hinckley loamy sand (242C): This soil accounts for approximately 0.2 percent of MNC. The Hinckley loamy sand soils consist of very deep, excessively drained soils formed in glaciofluvial deposits. They are moderately sloping soils on outwash terraces, outwash plains, outwash deltas, kames, kame terraces, and eskers. Slopes range from 8 to 15 percent. These soils do not meet hydric criteria.

National Pollutant Discharge Elimination System

Typically, National Pollutant Discharge Elimination System (NPDES) Construction General Permits are administered by the USEPA and require the submission solely to the USEPA. However, there are certain activities that require submittal of an NOI to both USEPA and the Massachusetts Department of Environmental Protection (MassDEP), including those that are covered under a Massachusetts Small Municipal Separate Storm Sewer Systems (MS4) Permit.

The Town of Bourne, MA, is an MS4 community and is operating under a Small MS4 General Permit, effective July 1, 2018 (postponed from July 1, 2017), and expiring on June 30, 2022. It is anticipated that the Phase 4 expansion would qualify for coverage under the Small MS4 General Permit. Therefore, a NOI would be required to be submitted to both USEPA and MassDEP, though a separate individual NPDES permit would not be required for the Phase 4 expansion.

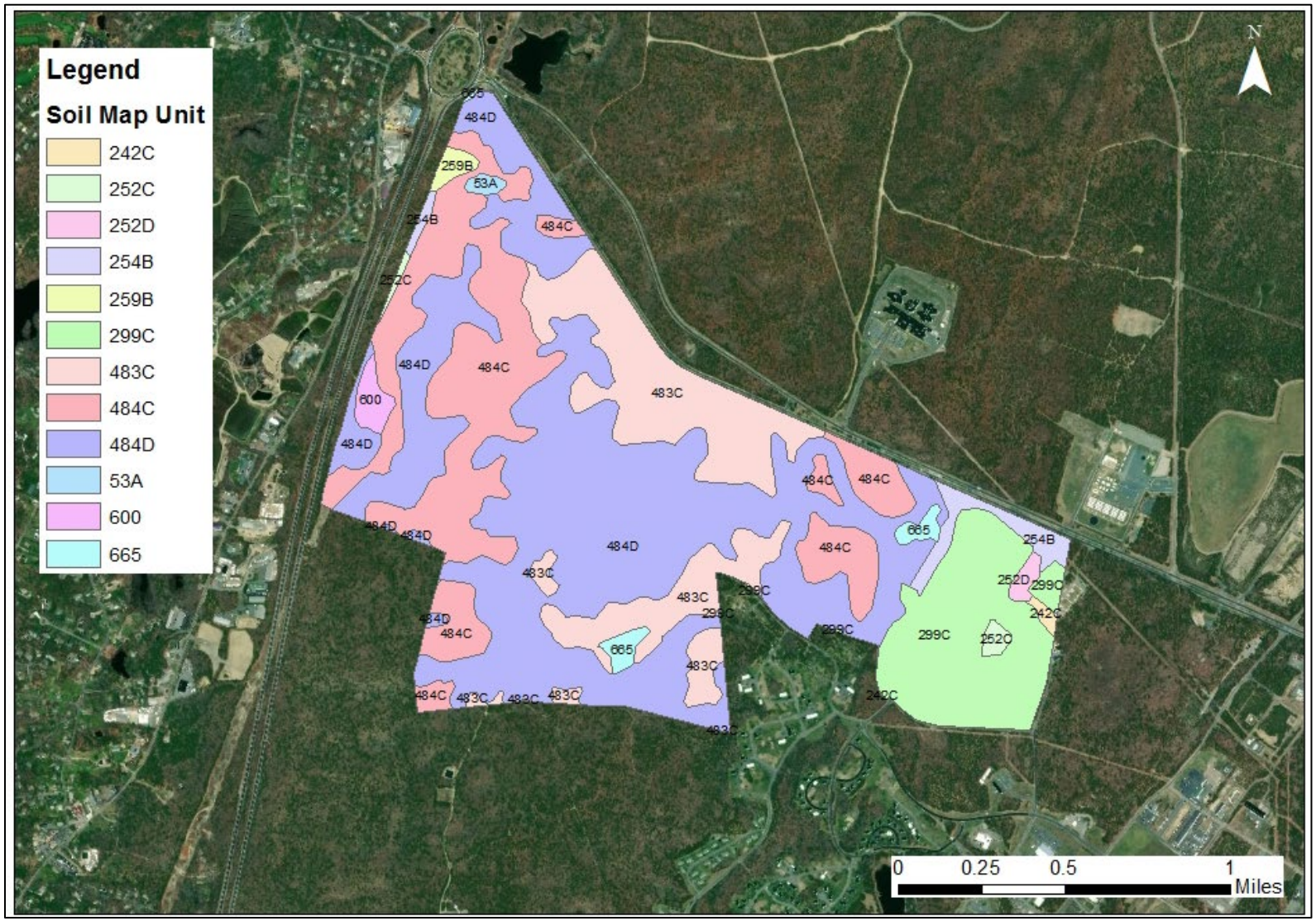
Under the filling, the construction contractor would be responsible for preparing and implementing a soil erosion and sedimentation control (SESC) plan and a stormwater pollution prevention plan (SWPPP) to prevent soil erosion and sedimentation of surface waters. The SESC and SWPPP engineering controls would include the installation and use of silt fencing, synthetic hay bales, specified loading and unloading areas, covering exposed soils during anticipated storm events, and revegetating soils with temporary and/or permanent native, non-invasive vegetation as soon as construction conditions allow.

Table 5. Soil Map Units within MNC

Soil Map Unit	Soil Map Unit Name	Drainage Class	Hydric[1] (Y/N)	Acres (percentage) within MNC Property
484D	Plymouth-Barnstable complex, hilly, extremely boulder	Excessively drained	N	340.2 (45.4)
484C	Plymouth-Barnstable complex, rolling, extremely bouldery	Excessively drained	N	162.0 (21.6)
483C	Plymouth-Barnstable complex, rolling, very bouldery	Excessively drained	N	120.3 (16.1)
299C	Merrimac-Udipsamments-Urban land complex	Excessively drained	N	86.1 (11.5)
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	Somewhat excessively drained	N	14.0 (1.9)
665	Udipsamments, smoothed	------	--	7.1 (0.9)
600	Pits, sand and gravel	------	--	5.8 (0.8)
252C	Carver coarse sand, 8 to 15 percent slopes	Excessively drained	N	3.6 (0.5)
259B	Carver loamy coarse sand, 3 to 8 percent slopes	Excessively drained	N	3.5 (0.5)
252D	Carver coarse sand, 15 to 35 percent slopes	Excessively drained	N	2.9 (0.4)
53A	Freetown muck, ponded, coastal lowland, 0 to 1 percent slopes	Very poorly drained	Y	2.1 (0.3)
242C	Hinckley loamy sand, 8 to 15 percent slopes	Excessively drained	N	1.7 (0.2)
Total	--	--	--	749.3 (100)

1 - Hydric soils are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

Figure 9. Soil Types within MNC



3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

Geology

Construction and Operation. Bedrock underlying MNC is approximately 150-feet below grade. The Phase 4 expansion would require land clearing, roadway construction, and excavations for pre-placed burial crypts. Placement of preplaced crypts typically requires eight feet of excavation. Construction of the new maintenance vehicle storage building would not require advancement of subsurface footings to bedrock. Therefore, no disturbances to bedrock or geological resources are anticipated from the Proposed Action.

Topography

Construction and Operation. Construction of the Phase 4 expansion phase would require grading to prepare undeveloped areas for burial sections, roadways, and the new maintenance vehicle storage building and stormwater management area.

The topographical slope of individual burial sections would generally be graded to less than six percent, with the bottom of the proposed burial crypts set at approximately eight feet below the final grade elevations. Roads would be pitched at a slope of no greater than 10 percent. An approximately 6,000 square-foot portion of the hillside located behind the existing maintenance complex would require cutting to allow for construction of the eastern end of the new maintenance building. Additionally, while the new maintenance building would require filling of Wetland 1 (approximately 0.1 acre), a new stormwater management area having a similar capacity would be constructed by excavating a depression into the ground just south of Wetland 1.

Construction grading activities would permanently modify portions of the existing topography of the Phase 4 expansion area. However, the overall current undulating topography would be retained to the maximum extent practicable.

Therefore, construction of the Proposed Action would have a long-term, direct, less-than-significant adverse impact on topography.

Operation of the Proposed Action would have no further impact on topography. In-ground burials would be performed in crypt fields previously graded during construction of the Phase 4 expansion. Topographic modifications made during construction would be maintained during operation.

Soils

Construction. Construction of the Phase 4 expansion could adversely impact native soils through several mechanisms. The primary mechanism is from land clearing and grading, which would remove the vegetation that otherwise stabilizes the underlying soil. Construction of the new 13,000 square-foot maintenance vehicle storage building would require cutting into an approximately 6,000 square-foot portion of the hillside on the eastern border of the maintenance complex to allow for the installation of a retaining wall. These activities would expose the soils within the construction area. Exposed soils that have not been compacted or restabilized with vegetation or hardscape may be susceptible to erosion by wind, temporarily increasing particulate matter in the surrounding air and creating adverse short-term health, visibility, and aesthetic impacts. Additionally, erosion from precipitation can potentially result in off-site discharges of sediment-laden runoff.

As previously described, the construction contractor would submit an NOI to USEPA and MassDEP and implement a SESC and SWPPP. Under this plan, the construction contractor would implement BMPs to minimize the potential impacts from erosion and sedimentation of exposed soils, including the use of silt fence, reinforced silt fence, composite filter socks, stabilized construction entrance(s), temporary sediment traps, and erosion control blanketing within the Phase 4 expansion area. The contractor would also use water-spray trucks to prevent loose soil from becoming airborne and would physically brush soil off construction vehicle tires prior to leaving the construction area, as needed. Additionally, exposed soils would be revegetated with temporary and/or permanent non-invasive vegetation as soon as construction conditions allow.

Construction and operational vehicles and equipment could also accidentally release petroleum-based fluids (diesel, hydraulic fluid) that can degrade soil quality, if the release is not immediately remediated. To avoid such potential releases and impacts, construction equipment would be properly maintained in good working order and equipped with emergency spill kits. This would ensure that construction contractors are prepared to respond to an emergency release of petroleum-based fluids, contain the release, and prevent impacts to soil from occurring. Additionally, construction equipment would be refueled in designated maintenance areas with impervious surfaces to avoid potential soil impacts from accidental fuel spills.

By utilizing appropriate erosion, sedimentation, and stormwater management BMPs and adhering to existing permits, impacts from construction of the Proposed Action on soil would be minimized to short-term, direct, less-than-significant adverse levels.

Operation. During operation, soil impacts would be limited to excavation of topsoil for individual inground burial sites in designated burial sections. Excavated soil would be temporarily stockpiled and returned to the burial site from which it was obtained, and then sodded to prevent erosion. Any excess soil would be immediately removed from the interment area and stockpiled at the existing MNC spoils area, where these soils would be vegetated and not subject to further erosion. Additionally, regularly scheduled maintenance of the existing and new stormwater management systems would be performed to ensure that the systems are functioning properly, such that stormwater is collected, and soils are not eroded by stormwater runoff.

Therefore, operation of the Proposed Action would have a short-term, direct, negligible adverse impact on soils.

3.6.2.2 No Action

No changes to the site would occur from implementation of the No Action alternative; therefore, no impacts to geology, topography, or soils would occur. Baseline conditions would remain, as described above.

3.7 Hydrology and Water Quality

3.7.1 Existing Environment

This section analyzes the potential impacts on surface and ground waters; a discussion of wetlands and floodplains is presented in Section 3.10.

3.7.1.1 Surface Water

There are no streams or rivers within MNC. There are no surface water features within the Phase 4 expansion area. However, five open freshwater ponds are present at MNC, generally in the upper northwestern portion of the property; these ponds are associated with wetlands 2, 6, 9, 10, and 12,

as depicted on Figure 11 in Section 3.10. These ponds are isolated and are not connected to any other surface water feature.

3.7.1.2 Groundwater

Groundwater Characteristics

Barnstable County, MA, overlies the Cape Cod Aquifer. This aquifer is designated a sole source aquifer by the USEPA because it provides potable water for the entirety of Cape Cod, excluding the town of Falmouth, MA (MA EEA, 2004). Aquifer thickness at MNC is approximately 250 feet. Recharge of the aquifer occurs mainly by precipitation. The groundwater table is at approximately 44 feet amsl throughout most of the MNC property.

As discussed in Section 3.6.1, due to the excessively drained character of the sandy soils present at MNC, most of the precipitation that falls on pervious surfaces percolates to groundwater. Little to no ponding is known to occur in the kettle holes present at MNC due to the excessively drained sandy soils.

Approximately 45 percent of precipitation that falls on western Cape Cod, where MNC is located, is recharged to the aquifer (ECS, 2019). This equates to approximately 1.20 billion gallons of precipitation being returned to the aquifer annually, under normal precipitation conditions. Likewise, approximately 45 percent of all irrigation water used at MNC is returned to the aquifer as recharge.

Groundwater Contamination

Since 1984, the USEPA has been aware of chlorinated solvent plumes located to the west and southwest of MNC on the JBCC property. Multiple plumes are located on the Otis Air National Guard Base, which was designated as a USEPA Superfund site in 1989. A Federal Facility Agreement (FFA) was signed in 1991 and amended in 2000 to govern cleanup of the site. There are currently nine plumes undergoing extraction and treatment, with cleanup efforts being managed by the U.S. Air Force. These plumes are deep, between 100 and 200 feet below the ground surface. Nearby groundwater wells that supply potable water are screened at much shallower depths and draw from the top of the aquifer. The USEPA, Army, and Air Force have determined that the Superfund site does not pose an immediate threat to the environment or public health, and ongoing treatment systems will continue until cleanup levels are met, with a projected finish date of 2047 (USEPA, 2018).

Landfill No. 1 (LF-1)

The former JBCC Landfill No. 1 (LF-1) created a plume of contaminated groundwater that has compromised groundwater quality in the nearby area (Figure 10). The primary contaminants in the LF-1 groundwater plume are perchloroethene (PCE), trichloroethene (TCE), and carbon tetrachloride (CCI_4) (AFCEE, 2010). A groundwater extraction and treatment system was constructed by JBCC in 1998 to extract the LF-1 contaminated groundwater plume for treatment to achieve drinking water standards. Although cleanup goals have not yet been achieved, the LF-1 site does not pose an immediate threat to the environment or public health, and treatment will continue until cleanup levels are met.

VA installed irrigation infrastructure (pumps, distribution lines) in 2007 to allow use of the LF-1 water source for irrigation of landscaped grounds at MNC. Although MNC previously used this treated water to irrigate portions of landscaped grounds within the existing cemetery, the LF-1

treatment system is no longer used to supply irrigation water.

Groundwater Consumption

Currently, based on sprinkler type and irrigation needs, an estimated 700,000 gallons of groundwater are consumed per day for irrigation needs. The peak season daily water use is approximately 1.027 million gallons per day. Natural precipitation is also used to irrigate landscaping. Potable water is not used for irrigation purposes.

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

Surface Water

Construction. Stormwater runoff from areas under construction, where soils may be exposed, can degrade surface water quality if sediment-laden runoff reached the surface water body. Construction of the Phase 4 expansion, particularly during grading, could result in these adverse effects occurring to surface water resources. Although there are no streams at MNC, there are several ponds near the proposed new maintenance road in the northwestern portion of MNC.

However, the potential for sedimentation is low, as is the transport of sediment-laden runoff to surface waters. As mentioned in Section 3.6.1, the excessively-drained nature of the sandy soils present on the MNC property would facilitate the rapid percolation of stormwater through the soil to the groundwater prior to the stormwater reaching a surface water body.

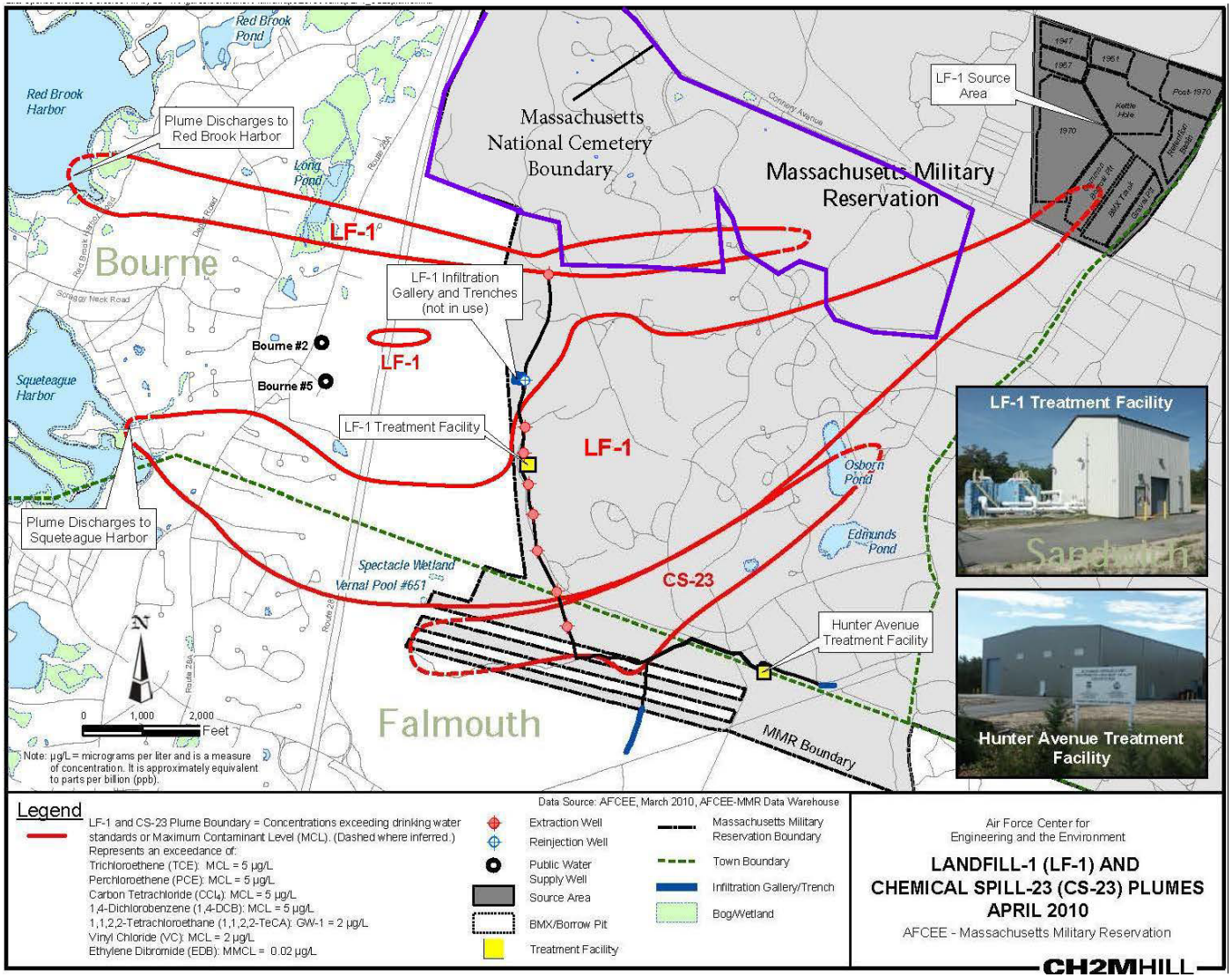
To further minimize a potential adverse impact to surface water, erosion and sediment controls and stormwater management systems would be implemented at the start of the construction process and continuously maintained. Stormwater runoff would be routed from impervious surfaces to designated stormwater management systems. Additionally, physical control measures (e.g. silt fencing, socks, etc.) would be installed around the border of each construction area to further reduce the off-site migration of any potentially sediment-laden runoff. These control measures, previously described for Soils under Section 3.6.2.1, would minimize the potential for stormwater to become sediment-laden or migrate to surface water bodies.

As stated in Section 3.6.2.1, a separate NPDES permit is not required for the Proposed Action because MNC is located within the town of Bourne, MA, an MS4 community, and is operating under an existing Small MS4 General Permit. However, a NOI is still required, along with implementation of BMPs identified in SESC and SWPPP.

The Phase 4 expansion would be designed to comply with USEPA Technical Guidance on Implementing the Stormwater Run-off Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (EISA) (USEPA, 2009a) to the maximum extent technically feasible. EISA Section 438 specifically calls for federal developments that exceed 5,000-square feet to maintain or restore pre-development hydrology during post-development conditions to the maximum extent technically feasible using a variety of "green infrastructure" and "low impact development" (LID) practices, such as minimizing the creation of new impervious surfaces, directing stormwater run-off to designated storage basins, and allowing precipitation to infiltrate into the ground surface to the maximum extent possible.

Therefore, construction of the Proposed Action would have a short-term, direct, negligible adverse impact on surface water.

Figure 10. Landfill-1 Plume Map



(AFCEE, 2010)

Operation. Operation of the Proposed Action would generate stormwater runoff from the new impervious surfaces, namely the new roadways and other hardscapes. Stormwater from the new expansion area would be captured by the existing MNC stormwater management system, which includes a series of culverts and discharge pipes that allow stormwater to drain to natural areas where stormwater can more readily infiltrate into the ground.

Construction of the new 13,000 square-foot maintenance vehicle storage building would fill in Wetland 1, which currently collects stormwater discharged from the maintenance complex. Prior to filling, a new stormwater retention area would be created just south of the existing wetland to receive stormwater discharged from the culvert pipe. Impacts to Wetland 1 are discussed further in Section 3.10.

Vegetation in landscaped areas would be maintained to prevent exposure of underlying soils. These design features and stormwater management measures would minimize the potential for sedimentation of runoff and avoid adverse impacts to surface water resources.

During operation, pesticide/herbicide applications by outside vendors (as part of routine maintenance activities) and the use of road deicing chemicals during the winter would be performed to the minimum extent necessary and in accordance with manufacturer specifications, resulting in minimal impacts to surface water and groundwater resources.

Therefore, operation of the Proposed Action would have a long-term, direct, negligible impact on surface water quality.

Groundwater

Construction. Due to the excessively drained character of the soils present at MNC, and the depth to groundwater of approximately 150-feet below grade, construction activities would not directly encounter groundwater. Therefore, no impacts to groundwater resources are anticipated due to construction work.

Under the Proposed Action, the existing groundwater wells IR-1 and EW00005 would continue to be utilized as irrigation water sources. However, LF-1 has been closed and will no longer be utilized as an irrigation source. Therefore, two new groundwater wells would be installed to provide additional irrigation capacity for the existing landscaped areas and the Phase 4 expansion area. The proposed Well 1 would be located in the northwest corner of MNC along the access road off of Connery Avenue. The proposed Well 2 would be located in the southwest portion of MNC off Lee Road and west of the existing EW00005 well. These well locations were chosen to avoid intersecting with any known contaminated groundwater plumes.

The two new wells are anticipated to withdraw more than 100,000 gallons per day. Accordingly, VA would apply for and obtain a Water Withdrawal Permit from MassDEP under the Water Management Act (M.G.L. c. 21G). VA would adhere to all permit conditions, including developing and implementing a water conservation plan. The water conservation plan would identify actions to conserve water at MNC and address leak detection, efficiency of water fixtures, and water resource protection. The water conservation plan developed for the Phase 3 expansion (VA, 2010) would be implemented, including opportunities for any additional efficiencies, for the Phase 4 expansion.

Prior to well installation, test wells would be installed to assess drawdown, safe yield pumping rate, and groundwater contaminant parameters, to ensure that the proposed irrigation wells would

not adversely impact the quality or quantity of available groundwater in the aquifer during operations. The drawdown to the aquifer from the two new wells is anticipated to be 1.8 feet, at 30 feet away from the wells; and 2.3 feet, at five feet away from the wells. These minimal drawdowns are not anticipated to negatively impact nearby groundwater users, cause saltwater intrusion to the aquifer, or depletion of groundwater storage in the aquifer (ECS, 2019).

Operation.

Irrigation Demand

Operation of the Phase 4 expansion would require approximately 20.5 million gallons of water annually to irrigate approximately 40 additional acres of newly landscaped burial sections. As previously described, two new groundwater wells (Well 1 and Well 2) would supply irrigation water to the Phase 4 expansion area, as well as decrease demand on the existing irrigation supply system (wells IR-1 and EW00005), by distributing demand to the new wells appropriately screened within the aquifer.

Operational irrigation water demand would be further reduced by implementing the water conservation plan, planting and maintaining native, non-invasive, drought-tolerant turfgrass including perennial rye, creeping red fescue, and Kentucky bluegrass, as well as other vegetation including shade and ornamental trees and shrubs.

The Proposed Action would require approximately 218,880,000 gallons annually for irrigation. Recharge to the aquifer is approximately 5.6 times greater than the expected annual withdrawals (ECS, 2019). Thus, while there is not a groundwater replenishment plan, there is ample recharge to the aquifer to support the anticipated withdrawals associated with the Proposed Action at MNC. Therefore, operation of the new groundwater irrigation supply wells is not anticipated to adversely impact the aquifer or the availability of groundwater for other users in the western Cape Cod area under normal conditions and climatic patterns.

Burial Practices and Maintenance Activities

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 Phase 4 expansion. The standard NCA design guidelines incorporate (for full casket burials) subsurface concrete crypts. The Phase 4 expansion would install 4,000 crypts in two new burial sections. Using this technique, the caskets are not buried directly in the soils; rather, they are set in a pre-placed concrete crypt. Additionally, modern embalming fluids are markedly less toxic as the primary active ingredients are no longer arsenic-based. Further, as selection of either in ground cremains interment or columbaria placement increases, the potential for groundwater contamination decreases, as no embalming fluids are used in these interment processes.

The crypt fields would utilize an adequate underdrainage system designed to keep groundwater from reaching the inside of the lowest crypt. As a result, operation of crypt fields is not anticipated to encounter groundwater, or, if groundwater is present, the contact period would be temporary.

During operations, pesticide/herbicide applications by outside vendors (performed as part of routine maintenance activities) would be conducted to the minimum extent necessary and in accordance with manufacturer specifications, resulting in minimal impacts to underlying groundwater resources.

Therefore, operation of the Proposed Action would have a long-term, direct, negligible adverse impact on groundwater quality.

3.7.2.2 No Action

Under the No Action alternative, the Proposed Action would not be implemented. Thus, there would be no potential for construction-related sedimentation of the surface water ponds at MNC. Additionally, there would be no increased demand on groundwater resources, because there would be no increase in irrigation demand. Irrigation water for the existing landscaped portions of MNC would continue to be supplied by IR-1 and EW00005; no new irrigation wells would be installed. Therefore, no impacts to hydrology or water quality would occur. Baseline conditions would remain, as described above.

3.8 Wildlife and Habitat

3.8.1 Existing Environment

Federally listed species are those plants and animals protected by the federal government pursuant to the Endangered Species Act of 1973 (ESA; 16 U.S.C 1531 et seq) as amended. Federally listed species are classified as endangered or threatened. State-listed species are those plants and animals managed by the Commonwealth of Massachusetts pursuant to the Massachusetts Endangered Species Act (MESA), (M.G.L. c. 131 A).

3.8.1.1 Wildlife

3.8.1.2 Listed Species

Requests for official federal- and state-listed species potentially occurring in the Phase 4 expansion area have been requested from USFWS and the Massachusetts Natural Heritage and Endangered Species Program (NHESP). Based on the USFWS IPaC, the northern long eared bat (NLEB) is the only federal-listed species identified as potentially occurring at MNC (USFWS, 2018); NLEB is also listed as endangered by the Massachusetts Endangered Species Act (MESA). Additionally, the eastern box turtle (EBT) is a MESA state species of special concern known to be present at MNC. A summary of federal- and state-listed species known to occur at MNC is presented in Table 6.

Table 6. Listed Species Potentially Occurring at MNC

Scientific Name	Common Name	Federal Status	State Status
Mammals			
Myotis septentrionalis	Northern long-eared bat	T	C – Rare
Reptiles			
Terrapene Carolina	Eastern box turtle	NL	SSC

Notes:
T = Threatened; SSC = Species of Special Concern; C = Candidate; NL = Not Listed

To assess the presence of suitable habitat for NLEB and the EBT within MNC, an on-site field survey was conducted of the entire MNC property, inclusive of the Phase 4 expansion area, from September 10 to 14, 2018. A summary of the survey findings is presented in the following subsections along with recommendations to minimize and/or avoid potential impacts to these species.

Northern Long-Eared Bat

The NLEB is characterized by its long-rounded ears that, when folded forward, extend beyond the tip of the nose. In Massachusetts, the NLEB is found in forests. NLEBs hunt at night over small ponds, in forest clearings, at tree top level, and along forest edges. They use caves or underground mines for hibernation and their maternity roosts are located in tree cavities, under exfoliating bark, and in abandoned buildings. The primary threat to the species is white-nose syndrome, a fungus that appears on the muzzle and other parts of hibernating bats. Impacts to hibernacula and loss or degradation of summer habitat can also cause mortality in this species.

During the September 2018 habitat survey, the entirety of the undeveloped forested areas within MNC was identified as having suitable habitat for the species. However, no NLEB individuals were observed or encountered during the survey.

Available MassGIS mapping from the NHESP that depicts known hibernacula and roost trees for NLEB in Massachusetts show no hibernacula are known to occur on or near MNC. Potential for hibernacula to occur at MNC is limited as there are no known caves, mines, boulder outcrops with deep pockets, or old abandoned buildings on the property. The nearest mapped roost trees are located approximately 5 miles north of MNC, within the northeastern portion of the JBCC.

Potential summer habitat consisting of daytime roost trees and nighttime foraging areas were evaluated during the September 2018 surveys. The tree canopy density and species distribution were evaluated to determine mature species composition, as well as size and presence of potential roost trees. Potential roost trees include all trees greater than three inches in diameter-at-breast-height (dbh) that exhibit cavities, cracks or crevices, or exfoliating bark located at least 10 feet above the ground. Tree snags (dead trees) can also provide suitable roosting habitat.

The approximately 500 acres of undeveloped MNC property is dominated by a mixed overstory of pitch pine and oaks consisting of white oak (*Quercus alba*), scarlet oak (*Quercus coccinea*), red oak (*Quercus rubra*), and scrub oak (*Quercus ilicifolia*), with a dense understory of black huckleberry (*Gaylussacia baccata*) and scrub oak (*Quercus ilicifolia*). The tree canopy height ranges from an estimated 30-50 feet, depending on specific location and age of the forest within MNC. There are some individual snags scattered throughout MNC; however, there are no large dense areas of snags.

The far eastern portion of MNC is a somewhat younger aged successional mixed hardwood and pitch pine forest that has reclaimed a previously developed area of historic military housing complexes (houses are no long present) and a patchwork of access roads. Generally, the species of trees in this area are similar to those found on other portions of MNC; however, the trees are not as tall or as large in diameter and the density of the understory is thicker.

Trees at MNC do not appear to have extensive cracks, crevices, cavities or extensive exfoliating bark, although some individual pitch pines have some exfoliating and/or rough platy bark and may provide suitable habitat for the NLEB.

Since extensive woodland habitat with trees greater than three inches dbh is present, there is potential suitable summer habitat for NLEB present at MNC.

Eastern Box Turtle

The EBT is characterized by the hinge on its lower shell which allows it to completely enclose its head, legs, and tail within its shells (NHESP, 2015). This species is also identified by the distinctive irregular yellow, orange, or reddish splotches on its upper shell, as well as the similarly colored pattern on its head and neck. In Massachusetts, the EBT is found in multiple terrestrial habitats including woodlands, fields, thickets, marsh edges, bogs, stream banks, and well-drained bottomland. EBTs typically hibernate from early November to February or mid-March and are active in Massachusetts from mid-March to late October. They are most active in the morning and evening hours and seek shelter under decaying logs or leaves to sleep. Mating occurs between April and October, with females nesting in June and early July. Nesting areas in Massachusetts vary greatly but can include woodland openings. Threats to this species include habitat destruction from human development, disturbance of nesting sites, collection by humans for use as pets, and genetic degradation due to the release of non-native turtle species by humans (NHESP, 2015).

Based on NHESP maps, MNC is mapped as Priority and Estimated Habitat for the EBT, a species state-listed as "Special Concern." Priority Habitat is based on the known geographical extent of habitat for all state-listed rare species, both plants and animals, and is codified under MESA. Habitat alteration within Priority Habitats may result in a take of a state-listed species, and is subject to regulatory review by NHESP. EBT and its habitats are protected pursuant to MESA (M.G.L. c. 131A) and its implementing regulations (MESA; 321 CMR 10.00). Habitat alteration within Priority Habitats may result in a take of a state-listed species, including EBT, and is subject to regulatory review by NHESP.

During the September 2018 habitat survey, examples of the preferred habitats for EBT were present throughout MNC. In addition to the woodlands that dominate the undeveloped portion of MNC, there are a number of open areas that could provide potential habitat for EBTs. These areas are dominated by grasses and forbs and were primarily associated with landscaped areas of the existing cemetery. Although these areas would not be considered primary habitat for EBTs, the species may readily cross these areas when moving about the landscape and utilize their edges with adjacent forested areas for feeding and thermoregulation. Other open and scrub-shrub habitats within MNC that are likely used during the active season include the maintained powerline rights-of-way, the most significant of which is along the western edge of MNC, adjacent to SR 28.

During the September 2018 survey, five individual EBTs were observed across the entire MNC property. An EBT mating pair was observed in a small wet topographic depression adjacent to Committal Shelter 1, and a lone juvenile EBT was observed approximately 600 feet east of the mating pair. Two deceased EBTs were also observed in the MNC landscape waste disposal area.

As previously described, habitat alteration within Priority Habitats may result in take of a state-listed species, including EBT, and as such the proposed modification plan is subject to regulatory review by NHESP. Accordingly, on June 5, 2019, VA submitted a MESA Project Review Checklist for NHESP review. On June 26, 2019, VA held a teleconference with NHESP to review the Proposed Action details and EBT avoidance measures. On July 3, 2019, NHESP issued a letter to VA that identified the following conditions necessary to avoid and minimize impacts to EBT during construction and operation of the Proposed Action (a copy of the letter is provided in Appendix B):

1. *Symbolic Flagging: Prior to the start of work, the Proponent (VA) will install symbolic flagging or fencing around the limits of work shown on the project plan (for the Phase 4 expansion) and maintain it throughout the work period. Upon completion of all work, said flagging or fencing shall be removed and properly disposed of.*
2. *Turtle Protection Plan: Prior to the start of work, VA will submit an Eastern Box Turtle Protection Plan to the Massachusetts Division of Fisheries and Wildlife (Division) for review and approval. Said Plan shall detail procedures for protecting state-listed turtles during construction, and be prepared and implemented by a qualified biologist pre-approved by the Division and in possession of a valid Scientific Collection Permit. Said Plan shall be implemented as approved by the Division; any changes to said Plan must be submitted to the Division for review and written approval prior to implementation of said changes.*
3. *Compliance Report: Prior to the completion of work, or as otherwise approved by the Division, VA will submit written confirmation (including representative photographs) to the Division documenting implementation of the Division-approved Turtle Protection Plan.*

Accordingly, VA has committed to implement these measures and has prepared a Turtle Protection Plan for NHESP review and approval. The elements of the Turtle Protection Plan incorporated into the Proposed Action are described in Section 3.2.8.1.

Additionally, at the request of NHESP, VA intends to evaluate opportunities for improving and conserving habitat for EBT within MNC property and will discuss these with NHESP; these opportunities are independent of the Proposed Action.

Migratory Birds

The USFWS administers the Migratory Bird Treaty Act (MBTA; 16 U.S.C. §§ 703-712, as amended), which protects migratory bird species in the United States. The MBTA prohibits, unless under permit, to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, import, export, or transport of any native migratory bird, nests, eggs, or any bird, nest, or egg parts. Additionally, EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, directs federal agencies to implement the MBTA.

The USFWS has identified 19 migratory birds of conservation concern that are expected to occur or may be affected by activities in a 10-square-kilometer area that overlaps MNC (USACE, 2018) (see Table 7). However, the inclusion of the species in this table does not necessarily indicate that the species is present at MNC. The migratory birds listed in Table 7 were identified by the USFWS IPaC tool as birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in this area of Massachusetts.

Table 7. Migratory Birds Potentially Occurring within MNC Region

NAME / LEVEL OF CONCERN	BREEDING SEASON
American Oystercatcher *Haematopus palliatus* BCC Rangewide (CON)	Breeds Apr 15 to Aug 31
Bald Eagle *Haliaeetus leucocephalus* Non-BCC Vulnerable	Breeds Oct 15 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* BCC Rangewide (CON)	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* BCC Rangewide (CON)	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* BCC Rangewide (CON)	Breeds May 20 to Aug 10
Dunlin *Calidris alpina arcticola* BCC – BCR	Breeds elsewhere
Eastern Whip-poor-will *Antrostomus vociferus* BCC Rangewide (CON)	Breeds May 1 to Aug 20
Least Tern *Sterna antillarum* BCC – BCR	Breeds Apr 20 to Sep 10
Lesser Yellowlegs *Tringa flavipes* BCC Rangewide (CON)	Breeds elsewhere
Prairie Warbler *Dendroica discolor* BCC Rangewide (CON)	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* BCC Rangewide (CON)	Breeds Apr 1 to Jul 31
Red-throated Loon *Gavia stellata* BCC Rangewide (CON)	Breeds elsewhere
Ruddy Turnstone *Arenaria interpres morinella* BCC – BCR	Breeds elsewhere
Rusty Blackbird *Euphagus carolinus* BCC Rangewide (CON)	Breeds elsewhere

NAME / LEVEL OF CONCERN	BREEDING SEASON
Seaside Sparrow *Ammodramus maritimus* BCC Rangewide (CON)	Breeds May 10 to Aug 20
Semipalmated Sandpiper *Calidris pusilla* BCC Rangewide (CON)	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* BCC Rangewide (CON)	Breeds elsewhere
Willet *Tringa semipalmata* BCC Rangewide (CON)	Breeds Apr 20 to Aug 5
Wood Thrush *Hylocichla mustelina* BCC Rangewide (CON)	Breeds May 10 to Aug 31

Notes:
1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area but appear on this list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

Construction and Operation. Construction and operation of the Phase 4 expansion would permanently convert approximately 50 acres of currently forested habitat to landscaped grounds (40 acres) or other non-forested landscape (10 acres). To further limit impacts, only those area necessary to establish interment areas, roadways, and other infrastructure as depicted in Phase 4 of the 2018 Master Plan would be developed under the Proposed Action.

As previously described, the entirety of MNC is considered suitable habitat for the state protected EBT and federally-protected NLEB. Impact avoidance and minimization measures for the NLEB, EBT, and potentially occurring migratory birds are presented in the following subsections.

Northern Long-Eared Bat

The USFWS recommends the avoidance measure of seasonal tree clearing restrictions from June 1 to July 31 to avoid prohibited incidental take of NLEBs during the pup season. Therefore, to avoid potential impacts to the NLEB, VA would implement the USFWS-recommended time-of-year-restriction for tree removal.

VA submitted a consultation letter dated April 23, 2019, to USFWS to seek concurrence with VA's conclusion that under this approach the Proposed Action may affect but is not likely to adversely affect the NLEB. USFWS provided a response that same day concurring with the VA's finding. No further consultation with USFWS is required. The consultation letter and the USFWS response are included in Appendix B of this SEA.

Eastern Box Turtle

The Proposed Action would incorporate the avoidance and minimization measures specified in the NHESP letter dated July 3, 2019. These measures include the development and implementation of a Turtle Protection Plan, which NHESP indicated would avoid and minimize impacts to the EBT. Accordingly, prior to construction, VA would implement an NHESP-approved Turtle Protection Plan to include the following measures:

1. Pre-Construction Turtle Barrier Installation - a vertical barrier (at least 2.5 feet high and 4-6 inches buried below ground) would be installed around the Phase 4 construction areas to prevent the entrance of EBTs into this area. The silt fence installed under the NPDES SESC/SWPPP may serve as the barrier.
2. Turtle Sweeps –A qualified biologist with a valid Scientific Collection Permit and pre-approved by NHESP would conduct a pre-construction sweep (visual and canine assisted) to relocate EBTs from within the fenced area to outside the barrier approximately two weeks prior to the start of construction.
3. Construction Personnel Education – At the start of the construction phase, the biologist would discuss EBT details (appearance, habitat) with construction workers, barrier maintenance requirements, and procedures to notify the biologist should an EBT be encountered and require relocation outside of the barrier.
4. Construction-Period Inspections – during construction occurring within the active EBT season (mid-March through November 1), the barrier would be inspected on a weekly basis by a construction worker and repaired, if required. Additional
5. Reporting – VA would submit findings of each survey to NHESP, along with a final summary report at the conclusion of the construction phase.

Based on the NHESP letter, implementation of a Turtle Protection Plan would avoid and minimize impacts to the EBT. Accordingly, a Turtle Protection Plan is being developed for VA by a qualified biologist separately from this SEA for submittal to NHESP for review and approval prior to construction.

Migratory Birds

The USFWS has developed Nationwide Conservation Measures that can help avoid and minimize impacts to all birds at any location year-round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests, and avoiding their destruction is a very helpful impact minimization measure. These measures are grouped into three categories: general, habitat protection, and stressor management. General measures include good housekeeping activities to discourage contact with live or deceased individual birds and properly managing waste receptacles to prevent access to birds and its use as forage. Habitat protection can include the establishment of buffers between developed and natural preservation areas and waterways and implementing standard soil erosion and dust control measures. Stressor management measures limit vegetation clearing, introduction of invasive species, artificial lighting, collision risks with buildings and vehicles, entrapment in constructed structures, minimizing artificial noise levels, preventing the release of chemicals to the environment, and minimizing fire risks to suitable habitat.

Although approximately 50 acres of wooded habitat will be permanently converted to landscaped grounds and non-wooded areas, the 450 remaining acres of MNC will remain undeveloped, providing suitable habitat to any displaced individual animals. This acreage is sufficient to provide foraging and breeding habitat for the aforementioned wildlife species.

Thus, implementing the avoidance and minimization measures described above for NLEB, EBT, and migratory birds will limit impacts of the Proposed Action resulting in only short-term, direct, less-than-significant adverse impacts to wildlife.

3.8.2.2 No Action

Under the No Action Alternative, expansion would not occur. Environmental conditions would remain as they currently exist, and there would be no impact to listed species or changes in the type or quality of habitat.

3.9 Noise

Sound occurs when vibrations that travel through a medium are interpreted by the biological elements of the ear. Noise occurs when sounds become undesirable, unpleasant, or damaging.

Sound pressure levels are quantified in decibels (dB), which is dependent on both frequency and intensity, and is given a level on a logarithmic scale. The way the human ear hears sound intensity is quantified in A-weighted decibel (dBA), which are level "A" weights according to weighting curves. Sound levels for common activities and construction work are presented in Table 8. Noise levels and durations from these activities would vary depending on the specific equipment being used, and the impact from this noise on a receptor would depend on the distance between the receptor and the source of the noise. Generally, noise levels decrease by approximately 6 dBA for every doubling of distance for point sources (such as a single piece of construction equipment), and approximately 3 dBA for every doubling of distance for line sources (such as a stream of motor vehicles on a busy road at a distance).

The National Institute for Occupational Safety and Health (NIOSH) recommends that individuals working in an environment of 85 dBA or louder for an eight-hour workday limit their exposure to this noise level and wear protective earwear to help manage and prevent hearing loss due to noise exposure.

Table 8. Common Household, Industrial, and Construction Sound Levels

Sound Level (dBA)	Common Sounds	Effect
140	Jet engine	Painful
130	Near air-raid siren	Painful
120	Jet plane takeoff, siren	Painful
110	Chain saw, thunder, garbage truck	Extremely loud
100	Hand drill	Extremely loud
90	Subway, passing motorcycle	Extremely loud
85	Backhoe, paver	Very loud
80	Blow-dryer, kitchen blender, food processor, cement mixer, power saw	Very loud
70	Busy traffic, vacuum cleaner, alarm clock	Loud
60	Typical conversation, dishwasher, clothes dryer	Moderate
50	Moderate rainfall	Moderate
40	Quiet room	Moderate
30	Whisper, quiet library	Faint

Noise sensitive receptors are defined as properties where frequent human use occurs and where a lowered noise level would be of benefit. These noise sensitive receptors include residences, hospitals, libraries, recreation areas, churches, and other similar uses.

3.9.1 Existing Environment

There are no sensitive noise receptors within the Phase 4 expansion area, at the MNC property, or the immediately surrounding area.

There is occasional low-level noise generated from normal operations at MNC. Noise results primarily from maintenance vehicles and equipment, military honors performed during committal services, and staff and visitor vehicles. These sounds can typically be heard only within cemetery grounds, and do not normally affect any outside receptors.

There have been no known complaints to MNC about noise heard outside MNC resulting from operations on the property. However, there have been some complaints about noise levels at Committal Shelter 3. Noise generated from normal operations at the maintenance complex can be perceived by service attendees at Committal Shelter 3. Specifically, beeping associated with backing up maintenance vehicles in the maintenance yard has been of concern.

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

Construction. Noise would be generated during construction of the Phase 4 expansion. Noise would be produced by construction equipment primarily involved in land clearing, grading, road construction, and excavation. Noise from construction activities would vary depending on the type of equipment being used at the time. As stated above, the impact from this noise on a receptor depends on the distance between the noise source and receptor. The nearest noise receptor to the Phase 4 expansion construction area would be staff and visitors present at neighboring existing burial sections.

Once mobilized to the site, the majority of construction equipment would remain within a designated construction area. This approach would minimize the need for multiple mobilizations of equipment to and from MNC, thereby decreasing the amount of noise associated with transporting heavy equipment and machinery.

Noise impacts would be further minimized by equipping construction equipment with appropriate sound-muffling devices (from the original equipment manufacturer or better), and limiting engine idling to less than five minutes. Additionally, construction activities would take place during daylight hours, during weekdays, unless there is a specific activity that would directly impact the current operation of the cemetery, in which case the activity would be scheduled outside of the normal construction schedule.

To minimize construction noise impacts on cemetery memorial services, notably loud construction activities would be scheduled to occur when these services are not being conducted, to the extent possible.

Construction workers would be working in close proximity to construction equipment and could be exposed to noise levels above 90 dBA for the duration of an 8-hour workday, which is the permissible noise exposure level defined by the Occupational Safety and Health Administration (29CFR 1910.95a). These noise levels would be reduced to permissible levels through feasible

administrative or engineering controls, and/or the use of BMPs, such as the use of hearing protection equipment, to ensure compliance with applicable OSHA standards.

Therefore, construction of the Proposed Action would result in short-term, direct, less-than-significant adverse impacts to receptors of noise that include visitors to the cemetery, off-site receptors, and workers.

Operation. Ceremonial rifle salutes would continue to occur at the three active committal shelters. To date, salutes have not resulted in any documented noise concerns.

Additionally, the Proposed Action includes installing a dense stand of evergreen trees on the north side of Committal Shelter 3 to limit the operational noise generated by vehicles at the maintenance complex that may be heard by service attendees. This would provide a long-term decrease in noise experienced by visitors at MNC.

During operations, current maintenance activities and typical visitor traffic would occur in the new Phase 4 expansion area. The noise generated from these activities would be similar to that of current cemetery operations. To ensure operational maintenance noises do not become a nuisance, the maintenance equipment would be maintained in good working order, operated during daylight working hours, and scheduled to occur outside of major events, thereby maintaining the dignity and solemnity of the MNC environment during memorial services.

As such, operation of the Proposed Action would result in short-term, direct, negligible adverse noise impacts on sensitive receptors.

3.9.2.2 No Action

Under the No Action Alternative, the Proposed Action would not be implemented, and no additional noise generating activities would occur in area designated for the Phase 4 expansion. Ceremonial rifle salutes would continue at the three active committal shelters until cemetery capacity is reached, and grounds maintenance activities would continue thereafter.

3.10 Floodplains, Wetlands, and Coastal Zone Management

3.10.1 Existing Environment

3.10.1.1 Wetlands

The United States Army Corps of Engineers (USACE) has regulatory jurisdiction over Waters of the United States, including wetlands pursuant to Section 404 of the *Clean Water Act* (CWA) and Navigable Waters of the United States pursuant to Section 10 of the 1899 Rivers and Harbors Act. Jurisdictional wetlands are delineated based upon the presence of hydric soils, hydrologic indicators, and hydrophytic vegetation in accordance with the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual for the Northcentral and Northeast Region (USACE, 2012) and Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979). In Massachusetts, wetlands and streams are potentially regulated under Massachusetts General Laws (MGL) Chapter 131, Section 40: *The Wetlands Protection Act*.

USACE can determine whether or not a wetland area is jurisdictional under Section 404 of the CWA through the jurisdictional determination (JD) process. The USACE asserts jurisdiction over wetlands "adjacent" (bordering, contiguous, or neighboring) to traditional navigable water (TNW) and wetlands adjacent to non-TNWs if the waterbody is relatively permanent, or if the waterbody is a wetland that directly abuts a relatively permanent water (RPW), or if a water body, in

combination with all wetlands adjacent to that water body, has a significant nexus with TNWs or interstate waters. Non-RPWs are jurisdictional where there is a "significant nexus" with a TNW or interstate water.

The Massachusetts Wetlands Protection Act (310 CMR 10) requires any project occurring within 100 feet of a wetland boundary to file a Request for Determination of Applicability (RDA) or a Notice of Intent (NOI) with the local conservation commission and MassDEP to obtain a permit (Order of Conditions) for the project. If the project applies a 100-foot buffer around all wetlands for which a positive determination of applicability has been issued, no action is necessary. Wetlands for which a negative determination of applicability has been issued are not subject to the buffer requirement.

A broad-brush wetland survey was conducted across the entire MNC property between September 10, 2018, and September 14, 2018. A total of 16 wetland areas were observed at MNC during these surveys (Figure 11). A brief description of each wetland is provided below. The majority of wetlands on the MNC property are less than 1 acre in area, with at least half of wetlands being less than 0.1 acres in size. The small size of the wetlands present at MNC precludes many of them from being significant, productive wetlands.

Of the 16 wetlands at MNC, three wetlands (wetland 1, 7, and 13) were located within or directly adjacent to the Phase 4 expansion area. Accordingly, a detailed delineation of these wetlands within and directly adjacent to the Phase 4 expansion area was completed on January 23, 2019. The detailed delineation included flagging of wetland boundaries and an assessment of soils and vegetation associated with each wetland.

Wetland 1

Wetland 1 is an isolated, vegetated freshwater wetland classified as a palustrine emergent/forested wetland located near the maintenance building complex within the northcentral portion of MNC. Typical wetland vegetation, hydric soils, and water stained ground and leaves were observed. Stormwater generated at the maintenance complex is discharged via a culvert pipe into Wetland 1.

Wetland 2

Wetland 2 is an isolated, vegetated freshwater wetland classified as a palustrine emergent/ open water wetland located near the northwestern corner of MNC within the electrical transmission line right-of-way. Typical wetland vegetation, hydric soils, and standing water were observed.

Wetland 3

Wetland 3 is an isolated, vegetated freshwater wetland classified as a palustrine emergent/scrub-shrub wetland and is located near the northwestern corner of MNC, within the electrical transmission line right-of-way. Wetlands 2 and 3 are divided by the electrical transmission line access road. Typical wetland vegetation, evidence of standing water, and hydric soils were observed.

Wetland 4

Wetland 4 is an isolated, vegetated freshwater wetland classified as a palustrine forested wetland located near the northwestern corner of MNC. Typical wetland vegetation and hydric soils were observed.

Wetland 5

Wetland 5 is an isolated, vegetated freshwater wetland classified as a palustrine forested wetland located near the northwestern corner of MNC. Typical wetland vegetation, evidence of standing water, and hydric soils were observed.

Wetland 6

Wetland 6 is an isolated, vegetated freshwater wetland classified as a palustrine emergent/open water wetland with a narrow fringe of palustrine forested wetland around the perimeter located near the northwestern corner of MNC. Wetland 6 contains an area of standing water that may provide vernal pool habitat. Typical wetland vegetation and hydric soils were observed.

Wetland 7

Wetland 7 is an isolated, vegetated freshwater wetland classified as a palustrine forested wetland located near the northwestern portion of MNC. Typical wetland vegetation and hydric soils were observed.

Wetland 8

Wetland 8 is an isolated, vegetated freshwater wetland classified as a palustrine forested wetland located near the northwestern portion of MNC. Typical wetland vegetation and hydric soils were observed.

Wetland 9

Wetland 9 is an isolated, freshwater wetland classified as a palustrine emergent/open water wetland with a narrow fringe of palustrine forested wetland around the perimeter located near the northwestern portion of MNC. This wetland contains an area of standing water that may provide vernal pool habitat. Typical wetland vegetation and hydric soils were observed.

Wetland 10

Wetland 10 is a large, isolated, freshwater wetland classified as a palustrine open water/emergent wetland with a narrow fringe of palustrine forested wetland around the perimeter located near the northwestern portion of MNC. Wetland 10 contains an area of standing water that may provide vernal pool habitat. Typical wetland vegetation and hydric soils were observed.

Wetland 11

Wetland 11 is an isolated, freshwater wetland classified as a palustrine forested wetland located near the northwestern portion of MNC, adjacent to the electrical transmission line right-of-way. This wetland may provide vernal pool habitat. Evidence of standing water, typical wetland vegetation, and hydric soils were observed.

Wetland 12

Wetland 12 is an isolated, freshwater wetland classified as a palustrine emergent/open water wetland located near the central portion of MNC. This wetland contains an area of standing water that may provide vernal pool habitat. Typical wetland vegetation and hydric soils were observed.

Wetland 13

Wetland 13 is an isolated, freshwater wetland classified as a palustrine emergent wetland located near the southcentral portion of MNC; adjacent to the landscape material disposal area. This wetland appears to receive stormwater runoff from the adjacent landscaped material disposal area. Typical wetland vegetation and hydric soils were observed.

Wetland 14

Wetland 14 is an isolated, freshwater wetland classified as a palustrine emergent wetland located near the southcentral portion of MNC, adjacent to the sand borrow pit and stockpile area. This wetland appears to receive stormwater runoff from the adjacent sand burrow and stockpile area. Typical wetland vegetation, hydric soils, and shallow areas of standing water were observed.

Wetland 15

Wetland 15 is an isolated, freshwater wetland classified as a palustrine emergent wetland located near the southcentral portion of MNC, adjacent to the sand burrow pit and stockpile area. This wetland appears to receive stormwater runoff from the sand burrow pit and stockpile area. Typical wetland vegetation, hydric soils, and shallow areas of standing water were observed.

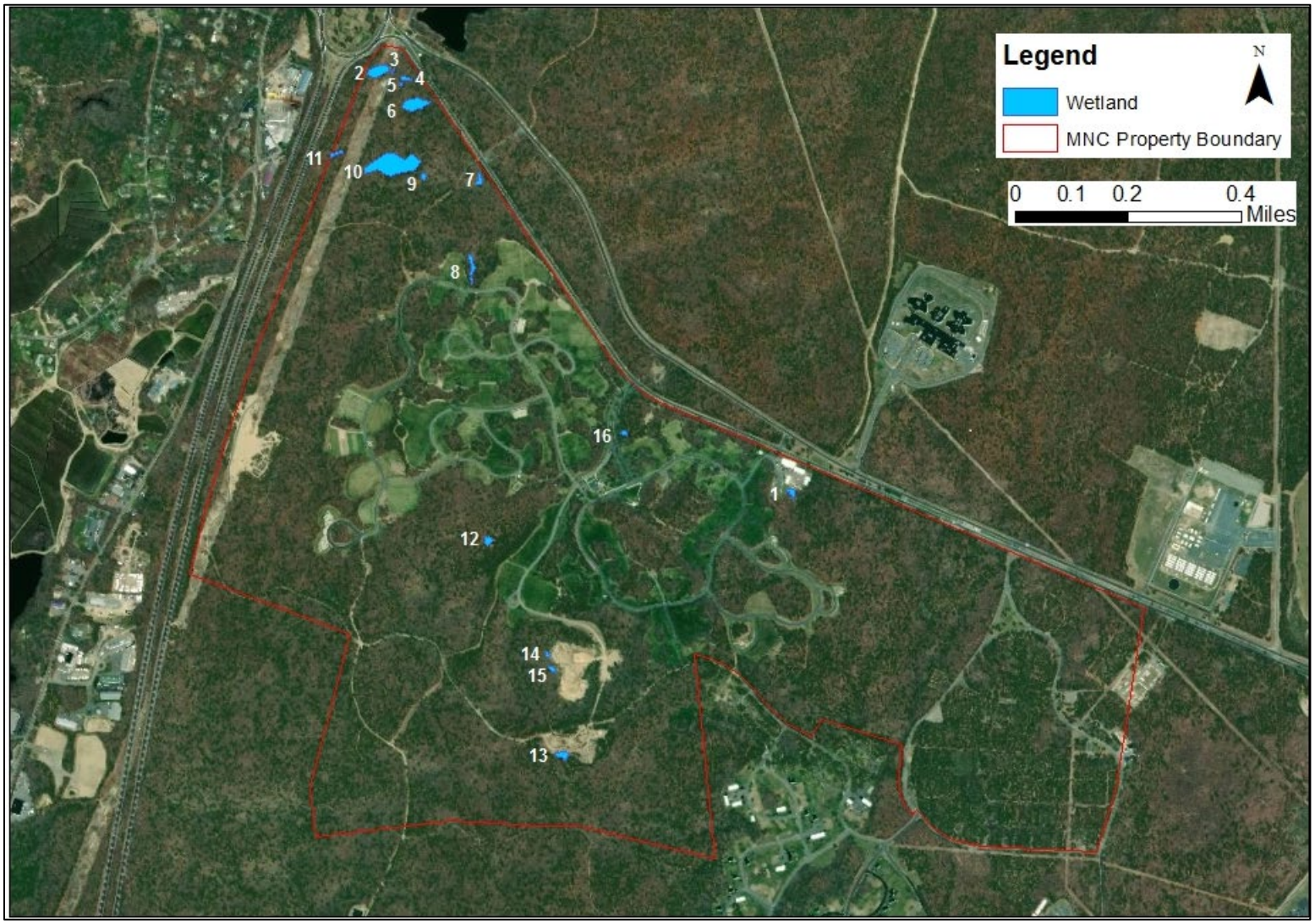
Wetland 16

Wetland 16 is an isolated, freshwater wetland classified as a palustrine forested wetland located near the central portion of MNC, adjacent to MNC's main entrance road. A culvert pipe outlet discharges water to this wetland from the adjacent entrance road. Typical wetland vegetation and hydric soils were observed.

VA determined that Wetland 1 may potentially be a regulated wetland under the jurisdiction of USACE under the CWA, because Wetland 1 may have a significant nexus with nearby RPWs and/or TNWs. Additionally, paving and widening of the service road within the northwestern portion of MNC would occur within the 100-foot buffer of Wetland 7, and construction of selected Phase 4 expansion burial sections would occur within the 100-foot buffer of Wetland 13. Therefore, VA submitted a JD application to USACE for review of Wetlands 1, 7, and 13, on March 12, 2019. USACE provided an official negative determination on July 02, 2019, stating that Wetlands 1, 7, and 13 are not subject to USACE jurisdiction under Section 404 of the CWA. Thus, under the CWA, no mitigation is required to fill or work within 100 feet of these wetlands.

To determine state jurisdiction of the wetlands, VA submitted an RDA to the Bourne Conservation Commission (BCC). At a public commission hearing held on April 04, 2019, BCC concluded that Wetlands 1, 7 and 13 did not meet the criteria of wetland resources under the Massachusetts Wetlands Protection Act. Additionally, BCC did not claim jurisdiction of any of the three wetlands under the Town of Bourne local wetland bylaws.

Figure 11. Wetlands within MNC



3.10.1.2 Floodplains

Based on review of available Federal Emergency Management Agency (FEMA) Flood Zone Map number 25001C0512J (effective July 16, 2014), MNC is located within an area of minimal flood hazard (Zone X; above the 500-year floodplain), outside of the 100-year (Zone A, AE) or a 500-year floodplain (Figure 12). Thus, there are no anticipated impacts to floodplains from the construction or operation of the Phase 4 expansion as described in the 2018 Master Plan.

3.10.1.3 Coastal Zone Management

The *Coastal Zone Management Act* (CZMA) was enacted in 1972 to preserve, protect, develop, and, where possible, to restore and enhance the resources of the nation's coastal zone. Coastal states are encouraged to develop state coastal management programs, and comprehensively manage and balance competing uses of and impacts to coastal resources. The U.S. Department of Commerce National Oceanic and Atmospheric Administration (NOAA) approves coastal management programs. The Massachusetts Office of Coastal Zone Management (CZM) within the Executive Office of Energy and Environmental Affairs (EEA) implements Massachusetts' coastal program under the CZMA.

According to the Massachusetts CZM Policy Guide, all of Cape Cod is included in the coastal zone (Figure 13). A federal consistency review by CZM is required for most projects that occur within the coastal zone and are considered a federal agency activity. However, the Massachusetts CZM guidance indicates that land owned or controlled by the federal government is excluded by law from the coastal zone and is exempt from a federal consistency review (CZM, 2011). Since the MNC property is federally owned, and the Phase 4 expansion would occur within the boundary of the federally owned property, a federal consistency review under the CZMA is not required.

Figure 12. Floodplain Map

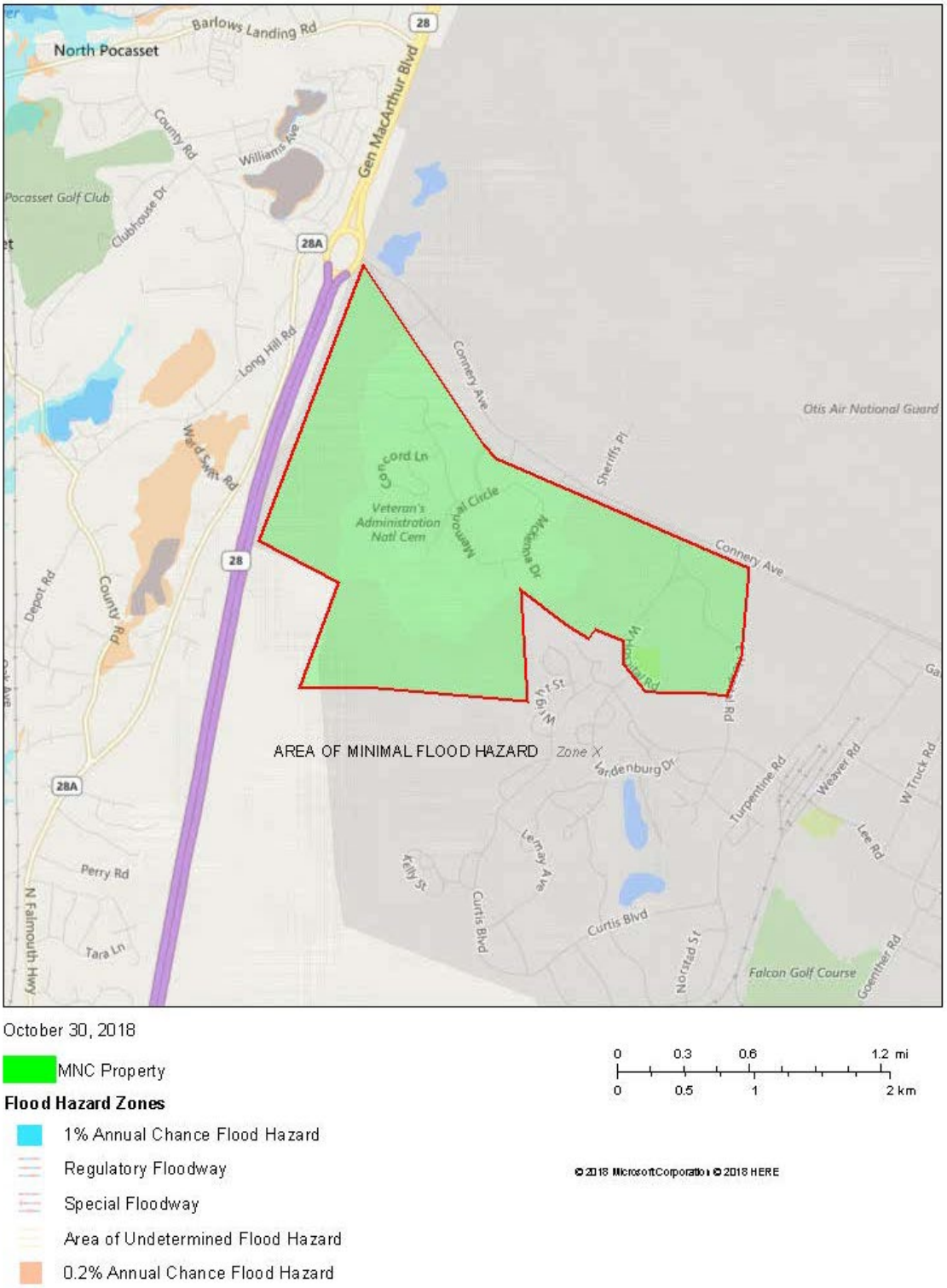


Figure 13. Massachusetts Coastal Zone Map

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

Wetlands

Construction. As previously described, neither USACE nor BCC elected to take jurisdiction of the wetlands 1, 7, or 13. Accordingly, no mitigation is required to fill or work within 100 feet of these wetlands.

As previously described, the Proposed Action includes the construction of a new 13,000-square foot maintenance vehicle storage building along the southern edge of the existing maintenance complex and extend approximately 60 feet east of the current footprint of the complex. Wetland 1 is located within the range of this 60-foot area. Thus, wetland 1 would be filled under the Proposed Action. To minimize stormwater impacts associated with the filling of Wetland 1, VA would create a new retention area to serve the stormwater culvert pipe that currently discharges to Wetland 1.

Construction of Phase 4 burial sections and the new maintenance roadway may require work within 100 feet of wetlands 7 and 13. However, to minimize impacts to these wetlands, erosion and sedimentation control measures (described under the Soils heading) would be implemented to prevent sediment-laden stormwater runoff from reaching either wetland.

Therefore, the Proposed Action would result in long-term, direct, less-than-significant adverse impact from filling non-jurisdictional Wetland 1, and from development within 100 feet of non-jurisdictional Wetlands 7 and 13.

Operation. Operation of the Proposed Action has no ongoing activities that would adversely impact wetlands. Existing stormwater engineering controls would be properly maintained to ensure stormwater runoff is properly managed, such that its flow would not cause soil erosion and sedimentation of stormwater runoff. Additionally, newly landscaped vegetated areas would be professionally maintained by MNC staff to ensure soils remain covered and are not subject to potential erosive forces. Pesticide applications would be made according to label instructions as part of routine maintenance activities and would avoid direct application to or near wetlands or surface water bodies.

Therefore, operation of the Proposed Action would result in short-term, direct, negligible adverse impacts on wetlands and Waters of the U.S.

Floodplains

The Proposed Action would have no impact on floodplains. As previously described, MNC is not located within a 100- or 500-year floodplain.

Coastal Zone Management

As previously described, federally-owned lands are exempt from a federal consistency review by CZM. Additionally, operation of the Proposed Action has no direct or indirect mechanisms to impact coastal zone resources.

3.10.2.2 No Action

Under the No Action Alternative, the Proposed Action would not be implemented. The proposed new maintenance vehicle building would not be constructed; thus, Wetland 1 would not be filled in and would continue to receive stormwater from the maintenance complex and a replacement

stormwater basin would not be constructed. No work would be performed within the 100-foot buffer of wetlands 7 and 13. Current conditions would remain unchanged and potential adverse impacts to wetlands would not occur. Similar to the Proposed Action, the No Action alternative would have no impact on floodplains or the Massachusetts Coastal Zone.

3.11 Socioeconomics

3.11.1 Existing Environment

MNC is located within a suburban, high-density residential area of Cape Cod, MA. The median annual income in Barnstable County, MA is $65,382, which is approximately $10,000 less than the median annual income of $75,297 for Massachusetts and approximately $8,000 more than the median annual income of $57,617 for the United States. The largest industries in Bourne, MA are healthcare and social assistance, retail trade, and construction.

Relevant demographic data for Barnstable County and Massachusetts are presented in Table 9 and economic data are presented in Table 10.

Table 9. Demographic Data for Barnstable County and Commonwealth of Massachusetts

Location	Total Population[1]	Median Age	% Population under age 18[1]	% Minority Population[2]	% High School Grads	Veterans[1]
Barnstable County	214,703	51.8	15.1%	10.5%	95.48%	19,800
Commonwealth of Massachusetts	6,859,819	39.5	20.0%	30.6%	90.1%	340,288

1 – U.S. Census Bureau 2018a
2 –includes all race/ethnicity categories except non-Hispanic White persons

Table 10. Economic Data for Barnstable County and the Commonwealth of Massachusetts

Location	Number of Households[1]	% Population in Poverty[2]	% Unemployment Rate[2]
Barnstable County	163,533	7.6%	6.4%
Commonwealth of Massachusetts	2,894,484	10.5%	3.6%

1 – U.S. Census Bureau, 2018b
2 – NOTE: Estimates are not comparable to other geographic levels due to methodology differences that may exist between different data sources.

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

Construction. VA would utilize a competitive bidding process to select and hire a qualified firm to construct the Phase 4 expansion. (A similar process would be used to construct each of the potential future expansion phases.) Construction of the Phase 4 expansion would require the temporary employment of skilled laborers. Additionally, construction would require the purchase of supplies and materials (aggregate, masonry, landscape plantings) from local and regional vendors. The temporary increase in employment and spending on materials would have a short-term, direct, less-than-significant beneficial impact on the local economy, but only a negligible impact on the regional socioeconomic conditions. These construction-related beneficial impacts would end once the construction phase was complete.

Operation. The current workforce at MNC is anticipated to be sufficient to maintain and operate the Phase 4 expansion. If needed, additional maintenance staff could be hired to help maintain the larger area of landscaped grounds. Maintaining or slightly increasing staff levels would have no measurable impact on the socioeconomic conditions of the county or region.

The Proposed Action would increase the interment capacity and therefore the longevity of MNC. Over time, this would lead to a slight increase in the number of visitors to this area of southeastern Massachusetts. These visitors could potentially utilize area businesses (such as restaurants, lodging, service stations) during visits. The potential increase in spending would have a negligible beneficial impact in context to the overall economic activity in Barnstable County and the larger southern Massachusetts region.

Additionally, by extending the longevity of MNC, Veterans could continue to be interred at MNC rather than at a National Cemetery more than 75-miles from MNC or at a private cemetery. Thus, Veterans would not have to incur costs for burial at a private cemetery within southeastern Massachusetts. Likewise, visitors of Veterans interred at MNC would not have to incur the additional expense associated with to travel to a National Cemetery located beyond southeastern Massachusetts.

Therefore, operation of the Proposed Action would have a long-term, direct and indirect, negligible beneficial impact on socioeconomics.

3.11.2.2 No Action

Under the No Action alternative, the Proposed Action would not be implemented, and the longevity of MNC would not be extended. Upon reaching capacity, Veterans would be required to incur costs associated with burial at a private cemetery. If interred at a National Cemetery located beyond southeastern Massachusetts, visitors of these Veterans would incur additional costs to travel to the selected National Cemetery outside of southeastern Massachusetts. Therefore, the No Action alternative would have a short- and long-term, negligible adverse impact on socioeconomics.

3.12 Community Services

3.12.1 Existing Environment

MNC has provided burial benefits for Veterans and their families in southeastern Massachusetts since 1980. Other community services within the surrounding area include transportation, police, fire and rescue services, schools, healthcare, and parks and recreation. The Cape Cod Regional Transit Authority (CCRTA) provides bus service along SR 28; however, the closest stop to MNC is the Cape Cod Senior Residences, Pocasset stop, approximately 1.7 miles from MNC. This is an approximately 30-minute walk from MNC and involves crossing SR 28. Because no additional load is expected to be placed on these or other community services as a result of the Proposed Action, impacts to community services other than Veterans' burial benefits are not analyzed in this SEA.

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

Construction and Operation. The Proposed Action would provide approximately 12,000 new gravesites, therefore extending the longevity of MNC for approximately 10 years. This would allow VA to meet the continued demand for burial benefits by Veterans and their families in

southeastern Massachusetts, resulting in a long-term direct, significant beneficial impact on this community resource.

3.12.2.2 No Action

Under the No Action alternative, the Proposed Action would not be implemented, and there would be no increase in burial capacity or extension of the longevity of MNC. Upon reaching capacity, Veterans in southeastern Massachusetts would be required to obtain burial benefits at another National Cemetery, the nearest of which is located more than 170 miles outside of southeastern Massachusetts, or resort to burial in a private cemetery. Therefore, the No Action alternative would result in a long-term, direct, significant adverse impact on burial opportunities for Veterans and their families in southeastern Massachusetts.

3.13 Solid Waste and Hazardous Materials

3.13.1 Existing Environment

There are no known solid wastes or hazardous materials present within the Phase 4 expansion area at MNC.

Current operations at MNC generate solid waste consisting of office debris, flowers and other items left behind at burial sites. General office waste is disposed through a contract with a licensed solid waste transportation/disposal company. Solid wastes produced by visitors are disposed in onsite trash receptacles that are located near burial sections throughout MNC. There are separate receptacles for flower vases which have been left at burial plots by visitors.

Hazardous materials stored on site include less than 20 gallons of paint and cleaning solvents, as well as non-hazardous lubricating oils and petroleum-based liquids. Gasoline, diesel and used oil is stored in three separate above-ground storage tanks (ASTs) at the maintenance complex. The gasoline and diesel ASTs each have a 1,000-gallon capacity, while the used oil AST has a 500-gallon capacity. When needed, the used oil tank is emptied by a licensed contractor and properly disposed of off-site. All three ASTs are less than six years old. Additionally, there are six 55-gallon drums of new oil stored at the maintenance complex. MNC does not store any pesticides/herbicides on site. When needed, pesticides/herbicides are applied by a licensed contractor according to manufacturer specifications. No batteries (for maintenance vehicles and equipment) are stored at MNC. MNC staff transport used batteries to off-site facilities for recycling.

A vehicle wash station is located within the maintenance complex. The wash station is equipped with a Carbtrol Corporation wash water recycling system. All wash water is collected, treated and recycled through this system. This conserves water usage and treats and reduces any potential contaminant discharged to Wetland 1, which receives stormwater from the maintenance complex.

3.13.2 Environmental Consequences

3.13.2.1 Proposed Action

Construction. Construction of the Phase 4 expansion would generate solid waste, consisting of cleared vegetation, excess soil, and excess construction materials and packaging. Excess construction materials would be reused to the maximum extent practicable and any materials that cannot be reused would be recycled. Cleared vegetation would be composted on- or off-site. Excess soils would be reused on-site as fill to raise the elevation of designed burial areas. The nature of the solid wastes generated during construction of the Proposed Action would be similar to a typical construction project (such as packaging, and scrap hardscape supplies), and the

volumes generated would not be anticipated to make a major contribution to the overall solid waste volume generated and disposed of in Barnstable County, MA.

Additionally, all construction contractors would comply with VA's Master Specification 01 74 19 "Construction Waste Management". These management measures would ensure that potential impacts from construction of the expansion area would remain at short-term, direct, negligible adverse levels.

Operation. Operation of the Proposed Action would result in a negligible increase in the volume of solid wastes currently generated at MNC. These additional solid wastes would consist of flowers and other items left behind at burial sites within the Phase 4 expansion. This potential future waste stream would be combined with the existing sanitary solid waste stream. Operation of the Proposed Action would not require or result in an increase in the volume of office wastes or maintenance vehicle wastes. Solid waste would continue to be collected weekly in designated dumpsters and transferred by a qualified private contractor to an appropriate municipal solid waste landfill.

Hazardous materials used during operation of the Proposed Action would be limited to approved pesticides/herbicides applied by a licensed contractor according to the manufacturers' labeled instructions. These materials would be used for insect/rodent and weed control around MNC facilities.

Anticipated future solid waste generation would be a negligible contributor to overall solid waste volumes generated in the Barnstable County. Therefore, operation of the Proposed Action would have a long-term, direct, negligible adverse impact on solid wastes and hazardous materials.

3.13.2.2 No Action

Under the No Action alternative, the Proposed Action would not be implemented, and no additional solid or hazardous wastes would be generated above current volumes. Baseline conditions would remain as described above.

3.14 Transportation and Parking

3.14.1 Existing Environment

MNC is located to the south of Connery Ave, east of SR 28 in Bourne, MA. MNC is approximately 68 miles from TF Green International Airport in Warwick, RI, and 65 miles from Boston Logan International Airport in Boston, MA.

The MNC main entrance and exit is located along Connery Avenue. Bennington Boulevard provides direct access from the Connery Avenue. entrance to the administration building and the cortege lanes. A separate exit is located off an access road adjacent to the maintenance complex. Connery Avenue also provides access to the JBCC, and therefore is subject to additional traffic other than MNC visitors and staff . The annual average daily traffic (AADT) on Connery Avenue just west of the MNC entrance is 1,069 (DOT, 2018), as shown on Table 11.

Asphalt-paved, two-lane roads provide access to burial areas within MNC. Staff parking is located at the administration building and the maintenance complex. Visitors are encouraged to park along the curbed access roads, with additional parking areas at each committal service shelter.

To date, operation of MNC has not resulted in documented adverse impacts to area traffic levels or the transportation network within or outside of MNC.

Table 11. Average Annual Daily Traffic Volume for Area Roadways

Location	AADT (2016)
Connery Ave	1,069
MA Route 28	29,883

Source: MA DOT, 2018

3.14.2 Environmental Consequences

3.14.2.1 Proposed Action

Construction. During construction of the Phase 4 expansion, there would be a temporary increase in the number of vehicles (including both construction vehicles and worker vehicles) on area roadways including Connery Avenue, and within MNC. Based on similar expansions at other National Cemeteries, up to 30 construction worker vehicles may travel on area roadways per day during the 18-month construction period. The existing area roadway infrastructure is adequate for handling this temporary increase in roadway use, and no modifications to these roadways or traffic patterns would be required. If warranted, flaggers may be utilized to notify oncoming traffic of slower construction vehicles entering or exiting onto Connery Avenue. These temporary traffic increases would cease once the expansion is completed. Construction workers' vehicles and equipment would be parked within the Phase 4 expansion construction area.

Construction vehicles associated with the Phase 4 expansion would travel on the existing roadways in the central portion of MNC, particularly on Memorial Circle; these roadways are adequate to handle the temporary construction traffic and would not require physical alteration or traffic pattern modifications. Prior to traveling through MNC, the construction contractor would coordinate with MNC staff to ensure that construction vehicle traffic through the cemetery does not disrupt the solemnity of committal services and processions.

To ensure that construction vehicles do not degrade the quality of the existing or planned future roadways within MNC, gravel pads would be established at the exit of each construction area to ensure soil is removed from construction vehicle tires before traveling on the cemetery roadways.

Therefore, construction activities associated with the Proposed Action would have a short-term, direct, negligible adverse impact on transportation and parking within or in the vicinity of MNC.

Operation. Operation of the Phase 4 expansion would generate a similar volume of visitor and staff traffic currently associated with MNC: approximately 150-300 vehicles would be anticipated on roadways within and near MNC. SR 28 and Connery Avenue are currently able to accommodate this traffic volume and are anticipated to remain capable of doing so for the foreseeable future.

The Proposed Action would provide a new maintenance access road, accessible from Connery Avenue and west of the main entrance. This would allow maintenance staff more efficient access to burial areas within the western portion of MNC without having to travel through the main roadways within MNC.

The Proposed Action would provide approximately 20 new parking spaces near the administration building and the maintenance complex and would alleviate parking congestion in those areas. Elsewhere within MNC, visitors would continue to be allowed to park along the roadways near the new Phase 4 burial sections.

Therefore, operation of the Proposed Action would have a long-term, direct, moderately beneficial impact on transportation and parking.

3.14.2.2 No Action

No changes to transportation or parking at MNC would occur under the No Action alternative; therefore, no impacts would occur. Baseline conditions would remain, as described above.

3.15 Utilities

3.15.1 Existing Environment

Potable Water

MNC obtains potable water from the Bourne Water District, a public-municipal water utility. Potable water is not used to supply irrigation water.

Irrigation Water

Irrigation water is obtained from dedicated on-site groundwater supply wells and precipitation. There are currently 104 acres of irrigated land at MNC. As previously described, the main irrigation water source is an onsite well (IR-1) located adjacent to the maintenance complex at the Well Pump House. IR-1 is screened at 200 feet below surface and produces approximately 1,300 gallons per minute (GPM) using a single vertical turbine pump with variable frequency drive controls. When additional irrigation water has been needed, it was been sourced from the former LF-1 treatment system. Multiple wells delivered untreated water to the LF-1 treatment plant, including one well on the MNC property, EW00005. Water in this system was transported from the treatment plant to the 200,000-gallon LF-1 storage tank on the JBCC property at a rate of 700 GPM. The water either refilled the tank or, if the tank was full, bypassed the tank, and flowed directly into the infiltration gallery. The LF-1 system has been closed and will no longer be used as an irrigation source at MNC. However, the EW00005 groundwater well will continue to supply irrigation water to MNC.

The total combined yearly flow of the MNC onsite well and water sourced from the LF-1 treatment system was 57,032,407 gallons in 2014. As of September 06, 2018, the total combined yearly flow to date for 2018 was 40,255,403 gallons. Based on sprinkler type and irrigation needs, an estimated 700,000 gallons of water are consumed per day and 78.75 million gallons are consumed per year. The peak season daily water use is 1.027 million gallons per day.

The current existing IR-1 well has a capacity of 1,300 GPM, while EW00005 is at 200 GPM. In order to irrigate the new expansion area in an eight-hour water window, a total flow of approximately 2,950 GPM would be required.

Septic System

MNC utilizes onsite septic tanks for sanitary sewage. The closest sewer line available is on the JBCC property and previous evaluations estimated that approximately 1,800 feet of extension pipe would be needed to connect MNC to the nearest JBCC sewer connection. This action was deemed impractical due to the high cost.

Natural Gas and Electric Service

MNC obtains natural gas and electric services from NStar. MNC has one diesel-powered Kohler Power system generator supported by a 472-gallon diesel tank.

To date, there have been no complaints from neighboring communities or groups due to utility usage at MNC.

3.15.2 Environmental Consequences

3.15.2.1 Proposed Action

Construction. During construction, the existing irrigation system would be extended to the Phase 4 expansion area. The existing mainline irrigation water pipe at Veterans Way would be connected to piping at Patriot Lane. This extension would provide a looped mainline and a better hydraulic balance. This extension would have no impact on the potable water service, as the two systems are completely separate from one another.

As previously described, in order to supply 2,950 GPM necessary to irrigate the existing cemetery and the newly landscaped Phase 4 expansion area, VA would add two additional groundwater supply wells (Well 1 and Well 2) and upgrade well EW00005 from 200 GPM to 400 GPM. The existing IR-1 well would continue to provide 1,300 GPM, well EW00005 will provide 400 GPM after upgrades, and the two new wells would provide an additional 1,250 GPM for a total capacity of 2,950 GPM. The LF-1 system is closed and would no longer be used as an irrigation source.

The installation of these two new wells would not adversely impact the operation of the existing water utility or impact the potable water utility in Bourne or Barnstable County.

There are no anticipated increases in sewage system, gas, or electric utilities during construction of Phase 4.

Therefore, construction of the Proposed Action would be anticipated to cause negligible or no adverse impacts on any of the existing utilities.

Operation. As discussed in Section 3.7.2.1, operation of the Phase 4 expansion would require approximately 20.5 million gallons of water annually to irrigate approximately 40 additional acres of newly landscaped grounds. In order to meet this demand two new wells would be established. Proposed Well 1 would be located in the northwest corner of MNC along the gravel road that provides access from Connery Avenue. Proposed Well 2 would be located in the southwest portion of MNC off of Lee Road, and west of the existing EW00005. Both new wells are anticipated to be screened from approximately 200-250 feet below the ground surface, similar to existing groundwater supply wells. The optimal screen interval would be determined based on site-specific hydrogeologic study that would be conducted prior to completing the wells.

The Cape Cod aquifer is anticipated to be able to adequately meet the irrigation demand for MNC, including existing landscaped areas and those within the Phase 4 expansion area. Although there is no irrigation replenishment plan, approximately 45 percent of all irrigation water currently used at MNC is returned to the aquifer as recharge. Also, as previously mentioned in Section 3.7.2.1, irrigation recharge combined with natural precipitation recharge to the aquifer is approximately 5.6 times greater than the anticipated MNC irrigation withdrawals. Therefore, it is expected that there is sufficient recharge to the aquifer to support anticipated withdrawals associated with the Proposed Action.

These new groundwater wells would improve the efficiency of irrigation operations at MNC distributing the irrigation demand across multiple groundwater supply wells. Additionally, improvements to the existing irrigation system would increase the efficiency of water used for irrigation purposes at the existing landscaped areas within MNC. Thus, the Proposed Action would

have a minor beneficial impact on the irrigation utility.

There are no anticipated impacts to any other utilities at the MNC property from operation of the Phase 4 expansion.

3.15.2.2 No Action

Under the No Action alternative, no changes to utilities would occur. Improvements to the irrigation utility would not occur; thus, the irrigation system would require continued maintenance to operate efficiently. However, no increases in the irrigation water demand would occur. Baseline conditions would remain, as described above.

3.16 Environmental Justice

3.16.1 Existing Environment

Executive Order (EO) 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" was enacted in 1994 to focus federal agencies attention on the environmental and human health conditions in minority communities and low-income communities with the goal of achieving environmental justice. Under this EO, federal agencies must identify and address the human health or environmental effects of its actions on minority and low-income populations.

For this analysis, data for minority and low-income populations were obtained for the area within a 2.5-mile radius of MNC, all of Barnstable County, and the Commonwealth of Massachusetts (Table 12). According to these data, the area within a 2.5-mile radius of MNC has a generally similar minority population as Barnstable County, but lower than Massachusetts, and a higher percentage of low-income populations (household income less than $25,000/year) than either the surrounding county or state.

Table 12. Minority and Low-Income Populations

Location	Total Population[1]	% Minority Population[1,2]	Percentage of Population below Poverty Level[1]
2.5-mile radius of MNC	5,392	10%	12%
Barnstable County	214,703	10.5%	8.2%
Commonwealth of Massachusetts	6,859,819	30.6%	10.4%

Notes:
1 – U.S. Census Bureau, 2018a. ACS Survey, 2012-2017
2 –includes all race/ethnicity categories except non-Hispanic White persons

3.16.2 Environmental Consequences

3.16.2.1 Proposed Action

The Proposed Action is not anticipated to have a disproportionate impact on low-income or minority groups in Barnstable County. The Proposed Action has no mechanisms to cause changes in population, income levels, housing, local tax revenues, or other non-cemetery community services. However, the Proposed Action may provide a temporary increase in local employment if the contractor(s) selected to perform construction activities hire local crew members, which could result in a minor positive socioeconomic impact on the community. Additionally, the Proposed Action would extend the longevity of MNC, thereby avoiding the need for minority or low-income Veterans, their families, and visitors to travel to another National Cemetery outside of southeastern

Massachusetts.

3.16.2.2 No Action

No impacts to minority and low-income populations would occur under the No Action alternative. Baseline conditions would remain, as described above. However, there would be a long-term adverse effect on low income Veterans and their families in the southeastern Massachusetts region, as they may need to purchase burial plots in private cemeteries, or incur additional travel costs to reach a National Cemetery beyond southeastern Massachusetts.

4 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 proposed 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 Part 1508.7). This SEA considers past, present, and reasonably 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. Reasonably foreseeable projects are projects for which plans have been approved, projects for which funding has been identified, recently completed projects, and projects in progress.

4.1 Proposed Action

As determined through the analysis provided in Section 3, the Proposed Action would not result in appreciable (that is more than negligible) adverse impacts in context with existing baseline conditions for Air Quality, Cultural Resources, Geology, Noise, Floodplains or Coastal Zone Management, Solid and Hazardous Materials, Transportation and Parking, Utilities, Community Services, Socioeconomics, or Environmental Justice. Therefore, these resources were not evaluated for potential cumulative impacts. Additionally, resources that would be beneficially impacted by the Proposed Action were not evaluated for potential cumulative impacts, including Aesthetics (operation), Socioeconomics (construction and operation), Community Services (operation), and Transportation and Parking (operation). Resources that have the potential to be cumulatively affected by the Proposed Action, when combined with other past, present, and reasonably foreseeable future projects at and in the vicinity of MNC, are Aesthetics (construction), Topography (construction and operation), Soils (construction and operation), Hydrology (operation), Wildlife and Habitat (construction and operation), and Wetlands (construction). Therefore, past, present and reasonably foreseeable future projects that could result in effects on these resource areas were considered for analysis.

4.2 Projects Considered for Potential Cumulative Impacts

In combination with the Proposed Action, other past, present, and reasonably foreseeable future projects at and in the vicinity of MNC have the potential to result in cumulative impacts. Projects to be analyzed for cumulative impacts were chosen based on their temporal and spatial relevance to reasonably cause cumulative impacts in conjunction with the timeframe of the Phase 4 expansion and implementation of the 2018 Master Plan. Using these criteria, other actions that may have cumulative impacts on the environment are:

- Past and future phases of construction for MNC including full implementation of the 2018 Master Plan. This includes a total of 181,860 new burial sites, as well as associated support facilities and roadways.
- JBCC military activities.

According to the 2008 Town of Bourne, Massachusetts, Local Comprehensive Plan, future commercial development would be contained within commercial growth districts to the greatest extent possible, and residential growth will be kept at a low-density level to maintain the character of the town and Cape Cod (Town of Bourne, Massachusetts, 2008). Additionally, a major goal of the 2008 Local Comprehensive Plan is to maximize open and public space. Therefore, minor

development projects in the Town of Bourne are unlikely to contribute to any cumulative impacts in addition to the implementation of the Phase 4 expansion.

4.3 Effects of Cumulative Actions with the Proposed Action

No significant, cumulative adverse impacts to any of the resources analyzed in the SEA would be expected from the implementation of the Proposed Action, as described in the following paragraphs.

Aesthetics (construction). Short-term, direct, less-than-significant adverse, cumulative impacts on aesthetics are expected from the construction of the Proposed Action in combination with present and other reasonably foreseeable future actions. Potential future expansion phases 5 and 6 would also occur in the south-central portion of MNC. Construction would require heavy machinery for grading, earthwork, road construction, and crypt placement. Each potential future development phase would permanently convert a portion of the unmanaged forested area to a National Shrine with manicured grounds having a park-like appearance. As needed, the construction contractor would erect temporary privacy fencing during earthwork to further minimize potential adverse aesthetic impacts on visitors.

The short timeframe (18-24 months) for construction of expansion phases and the prolonged time period (8-10 years) between phases would generally avoid overlap with other projects that may also have temporary aesthetic impacts associated with the presence of on-going construction work. Additionally, the cumulative impacts associated with the operation of the Proposed Action and the implementation of potential future development phases associated with the 2018 Master Plan would be beneficial to aesthetics as they would expand the park-like setting elsewhere within MNC.

Topography. The Proposed Action and potential future expansion phases associated with the 2018 Master Plan would have a long-term, direct, less-than-significant impact on the topography due to grading of the expansion areas. The topography within the central portion of the MNC property has already undergone extensive grading as a result of prior cemetery development. Although additional grading is expected for all future expansion phases, the generally undulating contour of the land would be retained to the greatest extent feasible. Therefore, considered cumulatively, the Proposed Action would result in less-than-significant adverse impacts on topography.

Soils. Construction of the Proposed Action and potential future expansion phases associated with the 2018 Master Plan would have a short-term, less-than-significant adverse impact on soils due to increased potential for soil erosion and sedimentation of stormwater runoff. Individually, all construction activities could have short-term, negligible to minor, adverse impacts due to vegetation removal, compaction of soils, and increased soil erosion and sedimentation. Considered cumulatively, the Proposed Action and present and other reasonably foreseeable future actions have the potential for short-term, minor, adverse impacts. However, implementing BMPs would ensure that potentially adverse cumulative impacts are maintained at or below less-than-significant levels.

Based on full build-out of the 2018 Master Plan, the soils of the eastern portion of MNC would be disturbed during potential future expansion phases to provide additional burial sections in the former Camp Edward medical and housing facilities area. This area previously contained Army barracks and a military hospital, the Convalescent Hospital, which was present from 1942 until its

demolition in the early 1970s. The hospital served as a large training facility for nurses during World War II and was a major orthopedic rehabilitation center following the war (AFCEE, 2008).

One known contamination source area, Coal Yard 3 (CY-3), is located at the far southeastern portion of this area, where West Hospital Road meets East Hospital Road. The CY-3 area is located at the site of the former hospital steam plant, which operated from 1945 to 1972. Coal was stored in this area on an unbermed, paved pad before transfer to hopper bins. Coal ash was temporarily stored in an on-site pit and moved periodically to the landfill on the JBCC property (AFCEE, 2008).

Site soil and groundwater investigations of two similar coal yards on the JBCC property (CY-2 and CY-4) were conducted in the late 1980s and early 1990s. The investigation found no contamination (AFCEE, 2008). Since each of the four coal yards at the JBCC had similar operational histories, the National Guard, USEPA, and MassDEP decided to use the CY-2 and CY-4 investigations as a basis for remediation strategies for CY-3. Consequently, all stockpiled coal and ash have been removed from the CY-3 area and it has been deemed a "No Further Action" site by USEPA, meaning it does not pose a threat to the environment or public health and no further remedial action is necessary (AFCEE, 2008). Therefore, potential future expansion phases that disturb the soils in this area are not anticipated to encounter contaminants and no further soil testing is anticipated to be needed prior to implementing construction phases in this area of MNC.

Therefore, considered cumulatively, the Proposed Action would result in short-term, less-than-significant adverse impacts on soils.

Hydrology. The Proposed Action and potential future expansion phases at MNC associated with the 2018 Master Plan would create increased irrigation water demand at MNC. The Proposed Action is anticipated to require an additional 1,650 GPM capacity for irrigating the approximately 40 acres of newly landscaped burial sections in the Phase 4 expansion area. Each potential future expansion phase is anticipated to require a similar increase in irrigation capacity. However, the increased demand associated with the Phase 4 expansion would not compromise the quantity or quality of the aquifer or the potable water resource, nor are potential future phases. VA would conduct additional hydrogeological studies to evaluate the water supply prior to implementing each potential future expansion phase.

Wetlands. Short- and long-term, less-than-significant cumulative adverse impacts on wetlands are anticipated from implementation of the Phase 4 expansion and reasonably foreseeable future expansion phases. The most direct impact to wetlands would be through filling Wetland 1 adjacent to the maintenance complex to allow for the construction of the 13,000-square foot maintenance vehicle storage building. However, a new stormwater management area would be created adjacent to the existing Wetland 1 to received stormwater runoff from the maintenance complex. With the exception of this impact to Wetland 1, the 2018 Master Plan avoids impacts to other wetlands at MNC.

Wildlife and Habitat. Short- and long-term, less-than-significant cumulative impacts to wildlife and habitat from past development and from implementation of the Proposed Action and potential future expansion phases associated with the 2018 Master Plan would occur. The Proposed Action and future expansion phases would develop the majority of the MNC property, including a much of the remaining 500 acres of currently undeveloped land, into landscaped gravesites and associated roadways and supporting infrastructure. This would cause a large degree of habitat fragmentation at MNC. As stated in the above Wildlife and Habitat section, Section 3.8, MNC is

known habitat for the federally protected NLEB and the state-protected EBT. These species would lose the majority of habitat present at MNC over the course of full buildout of the 2018 Master Plan. However, full buildout would occur over multiple phases over several decades, such that habitat would not be lost during a single expansion phase. Additionally, the adjacent JBCC maintains hundreds of acres of forested habitat that would not be impacted by development at MNC. Wildlife would be expected to migrate to suitable available habitat over time. Additionally, the wildlife present at MNC has been exposed to human activity for many years and is likely to be accustomed to the noise and activity levels that would be involved with both construction and operation of the Proposed Action and potential future expansion phases.

4.4 Effects of Cumulative Actions with the No Action Alternative

Under the No Action alternative, the conditions at MNC would remain as they currently exist for the foreseeable future. The current burial capacity would not be increased beyond the Phase 3 cemetery, effectively decreasing the longevity of MNC to only a few more years (in context of the availability to accept new burials). This would result in a long-term, significant adverse impact on Community Services (that is, a lack of burial opportunities at a National Cemetery within southeastern Massachusetts).

4.5 Potential for Generating Substantial Controversy

No elements of the Proposed Action are anticipated to generate substantial controversy or lead to negative public reaction. The Proposed Action is anticipated to be widely accepted in the community because it would extend the longevity of MNC for at least 10 years, and allow NCA to continue providing essential burial benefits at MNC to eligible Veterans and their families in the southeastern Massachusetts region.

Substantial public controversy would be anticipated under the No Action Alternative because the longevity of MNC would not be extended, leading to a lack of burial benefits at the only National Cemetery within the southeastern Massachusetts region.

5 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

VA invites public participation in decision-making on new proposals through the NEPA process. Public participation with respect to decision-making on the Proposed Action is guided by 38 CFR Part 26, VA's policy for implementing NEPA. Additional guidance is provided in VA's Environmental Compliance Management Directive (VA, 2012) and VA's NEPA Interim Guidance for Projects (VA, 2010). Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. Agencies, organizations, and members of the public with a potential interest in the Proposed Action, such as minority, low-income, and disadvantaged persons, are urged to participate. The following sections describe agency coordination and public involvement efforts associated with the Proposed Action.

5.1 Federal, State, and Local Agency Coordination

VA will notify relevant federal, state, and local agencies of the availability of this Draft SEA and allow them sufficient time to make known their environmental concerns that are specific to this Proposed Action. Comments and concerns submitted by these agencies will be subsequently incorporated into the Final SEA. These agencies are listed in Section 8. Copies of agency correspondence are provided in Appendix B.

5.2 Native American Tribal Coordination

In accordance with 36 CFR 800.2 and EO 13175, Consultation and Coordination with Indian Tribal Governments, dated November 6, 2000, VA will coordinate with federally recognized Native American Tribes (identified as those having current or historical ties to the area) by requesting their input on the Proposed Action and its potential impact on Native American resources. Based on a review of the U.S. Department of the Interior Bureau of Indian Affairs database, there are three federally recognized tribes that may have ancestral ties to Barnstable County, MA, the Proposed Action's Region of Interest. These federally recognized tribes include the Mashpee Wampanoag Tribe, the Wampanoag Tribe of Gay Head, and the Narragansett Indian Tribe of Rhode Island. Copies of Tribal correspondence are provided in Appendix B.

5.3 Public Involvement

VA, as the federal proponent of this Proposed Action, will make the Draft SEA available for a 30-day public review and comment period. The start of the review period and the process to obtain a copy of the Draft SEA will be announced in a Notice of Availability (NOA) published in the *Cape Cod Times* and *the Bourne Courier*. The Draft SEA will be published and available for review at the Jonathan Bourne Library in Bourne, MA, and the North Falmouth Library in North Falmouth, MA. An electronic copy will be available for download from the VA website at http://www.cem.va.gov/cem/EA.asp.

Comments or questions should be addressed to: Mr. Fernando L. Fernández, U.S. Department of Veterans Affairs, Construction & Facilities Management Office, 425 I (eye) Street, NW, Room 6W417b, Washington, D.C., 20001; by email to fernando.fernandez@va.gov; or by telephone at (202) 632-5529. Please reference "Massachusetts National Cemetery Expansion" in all correspondence.

Comments received during the 30-day review period will be addressed and documented in the Final SEA. Copies of public comments and an affidavit of publication of the NOA will be included in Appendix C.

6 BEST MANAGEMENT PRACTICES AND MONITORING

This section consolidates the avoidance, BMPs, and impact minimization techniques, as previously described in Section 3, to maintain the potential impacts associated with implementing the Proposed Action at less-than-significant adverse levels for each of the environmental resources analyzed in this SEA. Potentially required permits and approvals are presented in Chapter 7.

AESTHETICS
Construction
▪ Construct the Phase 4 expansion according to the design and sequence presented in the 2018 Master Plan.
▪ Control fugitive dust emissions by implementing industry-standard construction BMPs, including using water trucks for dust suppression, brushing soil off construction vehicle tires before leaving the construction site, and installing gravel pads at the construction exits to further prevent the tracking of soil onto roadways.
▪ As needed, install construction privacy fencing between the expansion area and the existing cemetery burial sections to reduce visual impacts to visitors.
▪ Plant native, non-invasive, drought-resistant vegetation following grading.
Operation
▪ Professionally maintain the landscaped areas consistent with existing cemetery operations.
▪ Conduct maintenance activities (mowing, power-washing, and others) on a schedule that limits potential disruptions to committal services.
AIR QUALITY
Construction
▪ Implement the dust control BMPs described for aesthetics.
▪ Utilize appropriate construction scheduling (avoid earthwork during extremely windy and dry periods).
▪ Stabilize exposed soil with vegetation or mulching to minimize erosion and potential dust generation.
▪ Construction vehicles traveling on paved roads within and outside of MNC would follow posted speed limits. This would minimize dust generated by vehicles and equipment on paved surfaces.
▪ On unpaved surfaces at the site, vehicle speeds will be maintained at or below five miles per hour to prevent dust generation of any exposed soil. Additionally, should any vehicles transport soil from one area of the property to another, the soil would be covered with haul tarps.
▪ Visually monitor construction activities on a daily basis, and particularly during extended periods of dry weather; implement additional dust control measures as needed.
Operation
▪ Keep landscaping and maintenance equipment (such as mowers, and power washers used to clean monuments, etc.) in good working order.

CULTURAL RESOURCES
Construction
▪ Comply with the NHPA, Archaeological Resources Protection Act of 1979, NEGPRA, American Indian Religious Freedom Act, 36 CFR Part 79, and EO 13007 Indian Sacred Sites.
▪ Implement the "Inadvertent Discovery" plan as follows; should human remains or other cultural items as defined by NAGPRA be discovered during project construction, the construction contractor shall immediately cease work until VA, a qualified archaeologist, the MHC SHPO, the Mashpee Wampanoag Tribe, Wampanoag Tribe of Gay Head, and the Narragansett Indian Tribe are contacted to properly identify and appropriately treat discovered items in accordance with applicable federal and state laws.
Operation
▪ Implement the "Inadvertent Discovery" plan described above in the case that excavations uncover human remains or other cultural items.
GEOLOGY, SOILS, AND TOPOGRAPHY
Construction
▪ Submit a NOI to USEPA and MassDEP, and develop and implement a soil erosion and sedimentation control plan and stormwater pollution prevention plan.
▪ Follow NCA Guidelines on slopes and grades. Generally, grade individual burial sections with a less than 6 percent slope, and pitch roads with no greater than a 10 percent slope.
▪ Minimize erosion and sedimentation of exposed soils through use of silt fencing, composite filter socks, stabilized construction entrances, temporary sediment traps, erosion control blanketing, and water-spray trucks.
▪ As needed, physically brush off soil from construction vehicle tires and bodies prior to leaving the construction area.
▪ Quickly revegetate disturbed areas following completion of construction activities to minimize the length of time that soils are exposed.
▪ Maintain construction equipment in good working order.
▪ Implement spill and leak prevention and response procedures for construction equipment, including maintaining a complete spill kit at the project area, to minimize the potential impact from an accidental fuel release on soil quality. Refuel equipment in designated impervious areas.
▪ Re-use excess soils onsite to the maximum extent practicable.
Operation
▪ Avoid soil erosion and sedimentation of runoff by maintaining stormwater management systems so these systems meet their design requirements throughout operation of the Proposed Action.
▪ Revegetate exposed soils to prevent erosion and manage excess soils by stockpiling in the designated spoils area.

HYDROLOGY AND WATER QUALITY
Construction and Operation
▪ Implement the soil erosion and stormwater management system BMPs listed above for Geology, Soils, and Topography.
▪ Maintain native, non-invasive, drought-resistant vegetation to prevent exposure of underlying soils.
▪ Route stormwater runoff from impervious surfaces to designated stormwater management systems. Maintain these in good working order during construction and operation.
▪ Apply pesticides/herbicides according to label requirements and keep these and road deicing usage to the lowest quantities possible, thereby reducing the potential for water quality impacts.
▪ Maintain and utilize emergency spill kits to protect surface water and groundwater quality from incidental releases of petroleum-based fluids from construction equipment and refuel equipment in designated impervious areas away from surface water resources.
▪ Design crypt fields with adequate underdrainage system to avoid prolonged contact with groundwater per NCA design requirements.
▪ Reduce operational irrigation water demand by planting and maintaining native, non-invasive drought-tolerant turfgrass and other vegetation.
▪ Adhere to the Water Management Act permit conditions for water withdrawal including developing and implementing a water conservation plan.
▪ Conduct aquifer pump tests for the two new groundwater wells (to supply irrigation water) to confirm appropriate screen intervals and pump rates.
▪ Develop a site design that maintains or restores pre-development hydrology during post-development conditions to the maximum extent technically feasible according to EISA Section 438.
HABITAT AND WILDLIFE
Construction and Operation
▪ Avoid impacts to wildlife and habitats by developing only the area necessary to establish interment areas, roadways, and other physical infrastructure, as depicted in the 2018 Master Plan.
▪ Implement the USFWS Avoidance Measure that prohibits any tree removal from June 1 to July 31. This would ensure there is no prohibited incidental take of northern long-eared bats during the pup season.
▪ Adhere to NHESP BMPs for minimizing impacts to the eastern box turtle including limiting habitat fragmentation, conducting construction area sweeps, and installing silt fence barriers around construction areas, as specified in an NHESP-approved Turtle Protection Plan.
NOISE
Construction
▪ Schedule construction activities for daylight hours during the weekday to minimize potential impacts to nearby residential areas during otherwise quieter evening and weekend periods.

▪ Maintain mufflers and sound shielding on construction equipment and shut down construction equipment when not in use for more than 5 minutes.
▪ Schedule notably loud construction work to avoid impacts during memorial services.
▪ Provide hearing protection to workers for activities that would exceed the OSHA permissible noise exposure level.
Operation
▪ Maintain routine maintenance equipment (lawn mowers) and other power equipment in good working order.
▪ Operate maintenance equipment during daylight working hours and away from committal services, thereby maintaining the dignity and solemnity of the MNC environment during these services.
WETLANDS
Construction and Operation
▪ Implement the management measures specified above for Soils and Hydrology and Water Quality to prevent sedimentation of runoff and potential migration to wetlands.
▪ Replace wetland 1 with a stormwater retention basin capable of receiving stormwater runoff from the maintenance complex.
SOLID WASTE AND HAZARDOUS MATERIALS
Construction
▪ Reuse excess construction materials to the maximum extent practicable. Recycle materials that cannot be reused. Properly dispose of all other materials.
▪ Follow the NCA Master Construction Specification 01 74 19 "Construction Waste Management" for construction waste management.
Operation
▪ Manage new solid waste volumes with existing and similar waste streams for collection and off-site disposal.
▪ Manage pesticide/herbicide use as described under Soils.
TRANSPORTATION AND PARKING
Construction
▪ If required, utilize flaggers to notify oncoming traffic of slower construction vehicles entering or exiting off Connery Avenue.
▪ Schedule and route construction vehicle traffic away from roadways within the existing MNC burial areas to avoid interfering with committal service processions.
▪ Utilize BMPs specified for Soils to avoid tracking soil onto area roadways.
▪ Minimize mobilizations of heavy equipment to and from MNC by staging construction equipment within the Phase 4 expansion area for the duration of the construction period, to the extent practicable.
UTILITIES
Operation
▪ Limit irrigation use as much as possible and maintain irrigation infrastructure in good working order to conserve groundwater resources.
▪

7 Environmental Permits, Approvals, and Determinations Potentially Required

Permit, Approval, or Certification	Responsible Agency	Contact Information	Applicable Criteria
Federal or State Environmental			
USEPA NPDES Construction General Permit	United States Environmental Protection Agency (USEPA) Massachusetts Department of Environmental Protection (MassDEP)	Submit Notice of Intent (NOI) through USEPA electronic CGP submission system, the NPDES eReporting Tool or "CGP-NeT" https://www.epa.gov/npdes/stormwater-discharges-construction-activities#ereporting Submit NOI application by mail to: EPA New England 5 Post Office Square, Suite 100 Boston, MA 02109-3912 ATTN: Olga Vergara or Shelley Puleo And submit application fee payment and a copy of NOI Transmittal Form to: MassDEP PO Box 4062 Boston, MA 02211 And submit a copy of the Transmittal Form, a copy of the EPA NOI, and any other required submittals to: MassDEP Surface Water Discharge Permit Program One Winter Street, 5th floor Boston, MA 02108	Proposed Action will disturb one of more acres of land. *An individual NPDES permit will not be required, as the activity is anticipated to be covered under the existing Small MS4 General Permit. However, a SESC and SWPPP shall be developed and implemented by the construction contractor.
Massachusetts Department of Environmental Protection (MassDEP) Water Withdrawal Permit	MassDEP	MassDEP Duane LeVangie (617)- 292-5706 Duane.LeVangie@mass.gov Mass DEP Boston Office Bureau of Water Resources 1 Winter Street Boston, Massachusetts 02108	Required if withdrawing 100,000 gallons or more per day for any 90-day period. Fee for amendment to existing permit (WM02) is $1,940; fee for new permit (WM03) is $4,100.
Massachusetts Natural Heritage and Endangered Species Program (NHESP) Turtle Protection Plan Review and Approval	Massachusetts NHESP	Submit Turtle Protection Plan for approval to: NHESP Regulatory Review 1 Rabbit Hill Road Westborough, Massachusetts 01581	Turtle Protection Plan requires approval by NHESPS, and implemented, prior to construction. Plan must be carried out by NHESP-approved biologist. Plan includes post-construction reporting requirements. VA submitted the MESA Review Checklist on June 19, 2019 and is coordinating with NHESP to obtain approval of VA's EBT Protection Plan, which will be implemented during construction. See Section 3.8.

Permit, Approval, or Certification	Responsible Agency	Contact Information	Applicable Criteria
Federal or State Environmental			
NHPA Section 106 Consultation and Native American Tribe Consultation	Massachusetts Historic Commission State Historic Preservation Office (MHC SHPO) Federally recognized Native American Tribes: Mashpee Wampanoag Tribe of Massachusetts Wampanoag Tribe of Gay Head (Aquinnah) of Massachusetts Narragansett Indian Tribe of Rhode Island	Ms. Brona Simon, SHPO & Executive Director Massachusetts Historical Commission 220 Morrissey Boulevard Boston, Massachusetts 02125 617-727-8470 Mashpee Wampanoag Tribe David Weeden, Tribal Historic Preservation Officer 483 Great Neck Road South Mashpee, MA 02649 508-477-0208 Wampanoag Tribe of Gay Head (Aquinnah) of Massachusetts Bettina Washington, Tribal Historic Preservation Officer 20 Black Brook Road Aquinnah, MA 02535 508-645-9265 Narragansett Indian Tribe John Brown, Tribal Historic Preservation Officer 4375 South County Trail Charlestown, RI 02813 401-364-1100	Required for all federal projects. Consultation with MHC SHPO was initiated with a request for concurrence on potential project impacts on May 15, 2019. No response was provided by the MHC SHPO within 30 days; therefore, review is complete, and the project may proceed as planned. Letters to the three federally recognized Native American Tribes were sent March 19, 2019. No responses from any of the Tribes were received within 30 days. See Section 3.5 and Appendix B.
COMPLETED United States Army Corps of Engineers, New England District Jurisdictional Determination (JD)	USACE	Submit application and all required items from the Jurisdictional Determination Requests Applicant Checklist Regulatory Division U.S. Army Corps of Engineers New England District 696 Virginia Road Concord, MA 01742 978-318-8338	Impacts to wetlands including filling. The jurisdictional determination process has been completed and USACE provided an official negative determination for Wetlands 1, 7, and 13 on July 02, 2019. See Section 3.10 and Appendix B.
COMPLETED United States Fish and Wildlife Service Section 7 Consultation	USFWS	Mr. David Simmons U.S. Fish and Wildlife Service New England Field Office 70 Commercial Street, Suite 300 Concord, NH 03301	Required for all federal projects that *may affect* listed endangered or threatened species. Consultation has been completed and USFWS concurred in a letter dated April 23, 2019 with VA's determination that the Proposed Action may affect but is not likely to adversely affect the northern long-eared bat. See Section 3.8 and Appendix B.

8 LIST OF PREPARERS

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H. Parzen, MS	NEPA Planner, Document Preparation and Review	1
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E. Brickman, PG	Senior Planner, Document Review	25
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9 ORGANIZATIONS CONSULTED

Federal

United States Fish and Wildlife Service New England Field Office

United States Environmental Protection Agency

United States Army Corps of Engineers, New England District

United States Department of Agriculture Natural Resources Conservation Service Massachusetts

U.S. Representative Bill Keating

State

Massachusetts Historical Commission

Massachusetts Natural Heritage and Endangered Species Program

Massachusetts Department of Environmental Protection Southeast Regional Office

Massachusetts Office of Coastal Zone Management

Massachusetts Department of Veterans Services

State Senator Viriato M. Demacedo

State Representative Randy Hunt

State Representative David Vieira

Local (Barnstable County and Town of Bourne)

Barnstable County Department of Health and Environment

Town of Bourne Conservation Commission

Town of Bourne Department of Natural Resources

Town of Bourne Veterans Agent

Federally-Recognized Native American Tribes

Narragansett Indian Tribe of Rhode Island

Wampanoag Tribe of Gay Head (Aquinnah)

Mashpee Wampanoag Tribe

Joint Base Cape Cod

Air Force Civil Engineer Center at Joint Base Cape Cod

Massachusetts National Guard Environmental and Readiness Center

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11 GLOSSARY

Sources:

- Army NEPA Glossary, http://aec.army.mil/portals/3/nepa/glossary00.pdf
- Glossary of Terms Used in Department of Energy 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 (NAAQS) 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 USEPA 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 (NAAQS). Criteria pollutants include sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and two size classes of particulate matter, PM10 and PM2.5. 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), PM10, PM2.5: 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, PM10 includes only those particles equal to or less than 10 micrometers (0.0004

inch) in diameter; PM2.5 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.

Tiering: A process under NEPA that seeks to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review.

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 – Environmental Survey Reports

Appendix B – Regulatory Communications

Appendix C – Public Involvement

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