DRAFT ENVIRONMENTAL ASSESSMENT

OF PROPOSED INSTALLATION AND OPERATION OF

PHOTOVOLTAIC (SOLAR) SYSTEMS

WILLIAM JENNINGS BRYAN DORN

VETERANS AFFAIRS MEDICAL CENTER

COLUMBIA, SOUTH CAROLINA

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Department of Veterans Affairs

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ENVIRONMENTAL ASSESSMENT
SIGNATURE PAGE

LEAD AGENCY: Department of Veterans Affairs (VA)
COOPERATING AGENCIES: None
TITLE OF PROPOSED ACTION: Proposed Photovoltaic (Solar) Systems at the William Jennings Bryan Dorn VA Medical Center (VAMC)
AFFECTED JURISDICTION: Columbia, South Carolina

POINT OF CONTACT: Thin (Sandy) Phu – Energy Manager/Engineer
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DOCUMENT DESIGNATION: Environmental Assessment

ABSTRACT: This Environmental Assessment (EA) evaluates the Proposed Action of the Department of Veterans Affairs (VA) to install and operate solar photovoltaic (PV) systems at the William Jennings Bryan Dorn (Dorn) VA Medical Center (VAMC) at 6439 Garners Ferry Road, Columbia, Richland County, South Carolina 29209. This EA discusses two alternatives: (1) the *No Action Alternative* and (2) *the Preferred Action Alternative* (Proposed Action). The Proposed Action involves installation and operation of roof-mounted PV systems on any or all of the following options: Building 100 Main Hospital; Buildings 106, 6, 7, 9, and 20; and/or canopy style arrays over existing Parking Lots 3 and 18B and over a proposed parking lot expansion for Parking Lot 12. The proposed project would also involve the construction of an approximately 1.5-acre expansion area for Parking Lot 12. This EA evaluates possible effects to aesthetics; air quality and greenhouse gases; biological resources, including threatened and endangered species; community services; cultural resources; geology and soils (including erosion and sedimentation); groundwater; land use; the noise environment; socioeconomics, including Environmental Justice (Executive Order [EO] 12898); Protection of Children (EO 13045); solid and hazardous wastes; surface water resources; transportation and parking; utilities; and wetlands and floodplains. This EA concludes there would be no significant adverse impact, either individually or cumulatively, to the local environment or quality of life associated with implementing the Proposed Action, provided routine management measures specified in this EA are implemented. Therefore, this EA concludes that a Finding of No Significant Impact (FONSI) is appropriate and that an Environmental Impact Statement (EIS) is not required.

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Table of Contents

SECTION **PAGE**

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

ACM	asbestos-containing material
APE	Area of Potential Effect
AST	aboveground storage tank
BMP	best management practice
CAA	Clean Air Act
CARB	California Air Resource Board
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO_2	carbon dioxide
COMET	Central Midlands Transit
dBA	decibel, A-weighted
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act fo 2007
EO	Executive Order
ESA	Endangered Species Act
°F	Fahrenheit
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FY	fiscal year
GHG	greenhouse gas
HTMW	Hazardous and Toxic Materials and Wastes
HUC	hydrologic unit code
I	Interstate
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
kW	kilowatt
lb/hr	pound per hour
MMBtu	million British thermal units
MWh	megawatt hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PV	photovoltaic
RCW	red-cockaded woodpecker
ROI	Region of Influence
SCDEC	South Carolina Department of Health and Environmental Control
SCDNR	South Carolina Department of Natural Resources
SCE&G	South Carolina Electric and Gas Company
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SME	Subject Matter Experts
SWPPP	Stormwater Pollution Prevention Plan
tpy	tons per year
U.S.	United States
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
VA	Department of Veterans Affairs
VAMC	Department of Veterans Affairs Medical Center

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SECTION 1: PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

This section provides the reader with necessary introductory and background information concerning the Proposed Action for proper analytical context; identifies the purpose of and need for the Proposed Action and the federal decision to be made; and provides a summary of public/agency involvement (and key issues identified), and applicable federal, state, and local regulations.

1.2 Background

The Department of Veterans Affairs (VA), a federal agency, currently operates the William Jennings Bryan Dorn VA Medical Center (VAMC) (herein referred to as the Dorn VAMC) and seven Community Based Outpatient Clinics located in South Carolina. The Dorn VAMC is located at 6439 Garners Ferry Road, Columbia, Richland County, South Carolina 29209 (See Figure 1). The Dorn VAMC opened in 1932 and is currently authorized to accommodate 216 beds. The Dorn VAMC provides primary care, tertiary care, and long-term care in areas of medicine, surgery, psychiatry, physical medicine and rehabilitation, cardiology, neurology, oncology, dentistry, geriatrics, and extended care. In fiscal year (FY) 2013, there were over 75,000 patients served from the Veteran population. The Dorn VAMC is located on 97 acres (of which 35 acres is leased out) and consists of 14 occupied primary buildings constructed between 1932 and 2013, plus four unoccupied historic buildings constructed in 1932.

The federal government has passed legislation and provided directives to federal agencies, such as the VA, that require these agencies to reduce energy use, reduce reliance on traditional fossil fuel-based energy sources, and increase the use of renewable energy sources at their facilities. Renewable energy sources include wind, solar, geothermal, biomass, and other sustainable methods. The following provides a brief summary of these federal requirements to which the VA is subject:

- In 2005, Congress passed the **Energy Policy Act**. Section 203 of this Act requires that, of the total amount of electric energy the federal government consumes during any FY, specific amounts shall be from renewable energy sources. Section 203 of the Energy Policy Act requires that: for FYs 2013 and beyond, not less than 7.5 percent of the federal agency's consumed energy must be renewable in nature. In addition, the Act specifies that, "For the purposes of determining compliance, the amount of renewable energy saved shall be doubled if: (a) The renewable energy is produced and used *onsite* at a federal facility; (b) The renewable energy is produced on federal lands and is used at a federal facility; or (c) The renewable energy is produced on Indian land and used at a federal facility."

- **Executive Order (EO) 13423**, *Strengthening Environmental, Energy, and Transportation Management* (24 January 2007), sets goals for the head of each federal agency with regard to environmental and energy management. This EO requires that federal agencies conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. Specifically, according to EO 13423, federal agencies are to, among other measures: (a) Improve energy efficiency and reduce greenhouse gas (GHG) emissions of the agency through a reduction of energy usage by 3 percent annually, or by 30 percent by the end of FY 2015, relative to the baseline of the agency's energy use in FY 2003; (b) Ensure that at least half of the statutorily required renewable energy consumed by the agency in any FY comes from new renewable sources (and, to the extent feasible, the agency implements renewable energy generation projects on

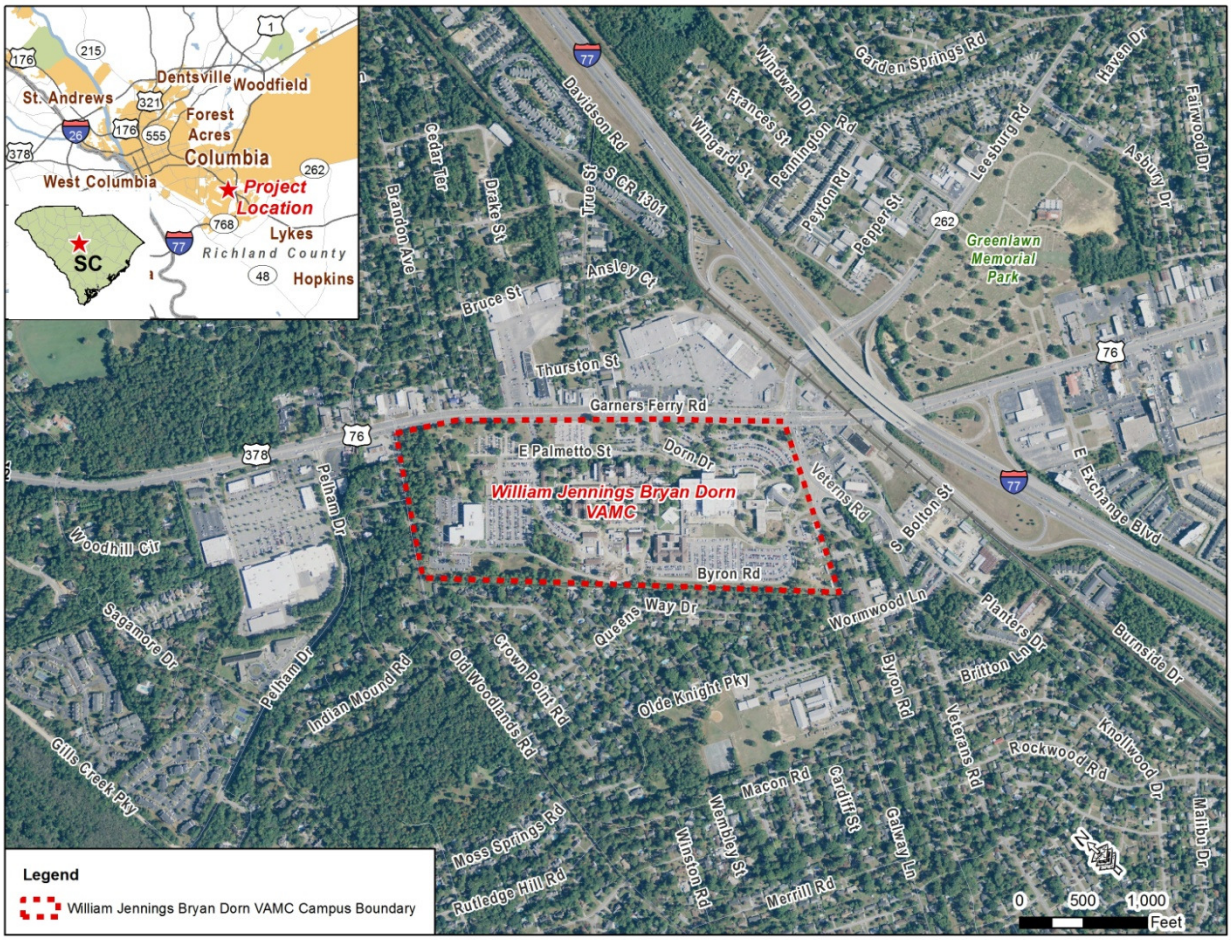

Figure 1. Site Location Map

agency property for agency use); and (c) Beginning in FY 2008, reduce water consumption intensity, relative to the baseline of the agency's water consumption in FY 2007, through life-cycle cost-effective measures by 2 percent annually through the end of FY 2015, or 16 percent by the end of FY 2015.

- **EO 13514**, *Federal Leadership in Environmental, Energy, and Economic Performance* (5 October 2009), sets federal energy requirements in several areas, including: Accountability and Transparency; Strategic Sustainability; Performance Planning; GHG Management; Sustainable Buildings and Communities; Water Efficiency; Electronic Products and Services; Fleet and Transportation Management; and Pollution Prevention and Waste Reduction. This EO states that all federal agencies are to increase the use of renewable energy and implement renewable energy generation projects on federal property.

- The **Energy Independence & Security Act** (EISA) of 2007 requires that all new federal buildings have at least 30 percent of the hot water demand met with a solar hot water system if it is life-cycle cost effective. The EISA also establishes a requirement for all new federal buildings to have a reduced dependence on fossil fuels. According to the EISA, "…(new) buildings shall be designed so that the fossil fuel-generated energy consumption of the buildings is reduced, as compared with such energy consumption by a similar building in FY 2003."

The VA is required to meet these renewable energy requirements. The facility currently has no renewable energy-producing sources and is traditionally connected to local utilities.

1.3 Purpose and Need

The purpose of the Proposed Action is to install and operate renewable energy sources, specifically photovoltaic (PV, or solar) systems, at the Dorn VAMC, in Columbia, South Carolina.

Various government policies, as described in Section 1.2, have come into effect in recent years requiring federal agencies to use renewable energy sources for their facilities. The proposed PV systems would provide a source of onsite renewable energy for the Dorn VAMC. This would allow the VA to contribute to achieving the goals set forth by EOs 13423 and 13514, the Energy Policy Act of 2005, and the EISA. As such, the Proposed Action is needed to assist the VA in complying with identified EOs and the Energy Policy Act of 2005.

1.4 Environmental Assessment Process

This Environmental Assessment (EA) has been prepared to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic impacts associated with the VA's Proposed Action of installing PV systems at the Dorn VAMC.

The VA, as a federal agency, is required to incorporate environmental considerations into their decision-making process for the actions they propose to undertake. This is done in accordance with the National Environmental Policy Act of 1969 ([NEPA]; 42 United States Code [USC] 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and 38 CFR Part 26 (Environmental Effects of the Department of Veterans Affairs Actions).

In accordance with the above regulations, the VA has prepared this EA. This EA allows for public input into the federal decision-making process; provides federal decision-makers with an understanding of potential environmental effects of their decisions, before making these decisions; and documents the NEPA process.

Taking into account potential environmental, cultural, and socioeconomic effects, the VA would ultimately decide, in part based on the analysis presented in this EA, whether the VA should implement the Proposed Action and, as appropriate, carry out mitigation measures to reduce effects on the environment.

1.5 Public Involvement and Agency Coordination

The 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, the VA's policy for implementing the NEPA. The VA's NEPA Interim Guidance for Projects (VA 2010) provides additional guidance.

Consideration of the views and information of all interested persons promotes open communication and enables better federal decision-making. Agencies, organizations, and members of the public with a potential interest in the Proposed Action, including federally recognized Native American tribes and minority, low-income, and disadvantaged persons, are urged to participate. Appendix A provides a record of public involvement, agency coordination, and Native American consultation associated with this EA.

1.5.1 Public Review

The VA, as the federal proponent of the Proposed Action, will publish and distribute the EA and Finding of No Significant Impact (FONSI) for a 30-day public comment period, as announced by a Notice of Availability published in a local newspaper of general circulation, in this case, *The State* newspaper. Review copies will also be made available for public review at the local community library in Columbia, South Carolina. Should substantive public comments be provided, the VA will consider these comments carefully, address these comments, and re-evaluate whether a FONSI is the appropriate NEPA decision document, per the specified regulations.

1.5.2 Agency Coordination

Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) is a federally mandated process for informing and coordinating with other governmental agencies regarding federal Proposed Actions. CEQ Regulations require intergovernmental notifications prior to making any detailed statement of environmental impacts.

Through the IICEP process, the VA notifies relevant federal, state, and local agencies and allows them sufficient time to make known their environmental concerns specific to a Proposed Action. Comments and concerns submitted by these agencies during the IICEP process are subsequently incorporated into the analysis of potential environmental impacts conducted as part of the EA. This coordination fulfills requirements under EO 12372 (superseded by EO 12416, and subsequently supplemented by EO 13132), which requires federal agencies to cooperate with and consider state and local views in implementing a federal proposal. It also constitutes the IICEP process for this EA.

Agencies consulted for this EA include the South Carolina Department of Archives and History (i.e., the State Historic Preservation Office, or SHPO); the United States Fish and Wildlife Service (USFWS) South Carolina Ecological Services Field Office; and the South Carolina Department of Natural Resources (SCDNR). Appendix A provides copies of relevant correspondence.

- A response from the SHPO has not yet been received as of the date of this EA.
- A response from the USFWS has not yet been received as of the date of this EA.
- A response from the SCDNR has not yet been received as of the date of this EA.

Data contained in these responses have been included within this EA, as and where appropriate.

1.5.3 Native American Consultation

The VA conducts consultation with federally-recognized Native American tribes as required under NEPA, the National Historic Preservation Act (NHPA), and the Native American Graves Protection and Repatriation Act. There are no federally-recognized Native American tribes in Richland County, South Carolina (National Park Service 2014).

SECTION 2: DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction

This section provides the reader with necessary information on the Proposed Action and its alternatives, including those that the VA initially considered but eliminated, and the reasons for eliminating them. The screening criteria and process developed and applied by the VA to hone the number of reasonable alternatives are described, providing the reader with an understanding of the VA's rationale in ultimately retaining for analysis a finite number of reasonable alternatives that meet the VA's purpose of and need for the Proposed Action.

2.2 Proposed Action

The VA's Proposed Action is to install and operate PV systems at the Dorn VAMC. This action would provide electricity to the campus, portions of which operate continually.

To determine the best locations for the Proposed Action, Antares Group, Inc. (Antares) conducted a Solar PV Feasibility Study at the Dorn VAMC in April 2013 (Antares 2013). The study evaluated the whole campus for suitability of PV array installation. Specifically, parking lots and rooftops were evaluated based on direct sun exposure and minimal changes to existing vegetation. The feasibility study analyzed the viability of seven rooftop solar PV locations, two parking lot PV canopy arrays, and three solar thermal rooftop locations. After consideration of the study's findings, the VA removed the solar thermal options from the Proposed Action and added a proposed expansion to an existing parking lot (Parking Lot 12) with a proposed PV canopy array constructed above it. After further consideration, the VA has currently decided to pursue only the three parking lot canopy arrays, but maintain the building rooftop PV configurations as potential options for the future. Thus, these rooftop arrays are included in this EA analysis.

The Proposed Action, as analyzed in this EA, would involve the installation and operation of solar photovoltaic arrays on any or all of the following options as shown in Figure 2:

Rooftop Arrays:
- Building 100, the main hospital
- Buildings 103, 106, 6, 7, 9, and 20

Parking Lot Canopy Arrays:
- Parking Lot 3
- Parking Lot 18B
- Parking Lot 12 expansion area

The proposed project would also involve the construction of an approximately 1.5-acre expansion area for Parking Lot 12. This proposed expansion area is currently covered with grass and trees. For this option under the Proposed Action, construction would require the removal of approximately 40 trees. This area would be paved to create the parking spaces and covered with a PV canopy array. All other proposed PV systems included in this Proposed Action would be located on existing rooftops or within the boundaries of existing paved or gravel parking lots.

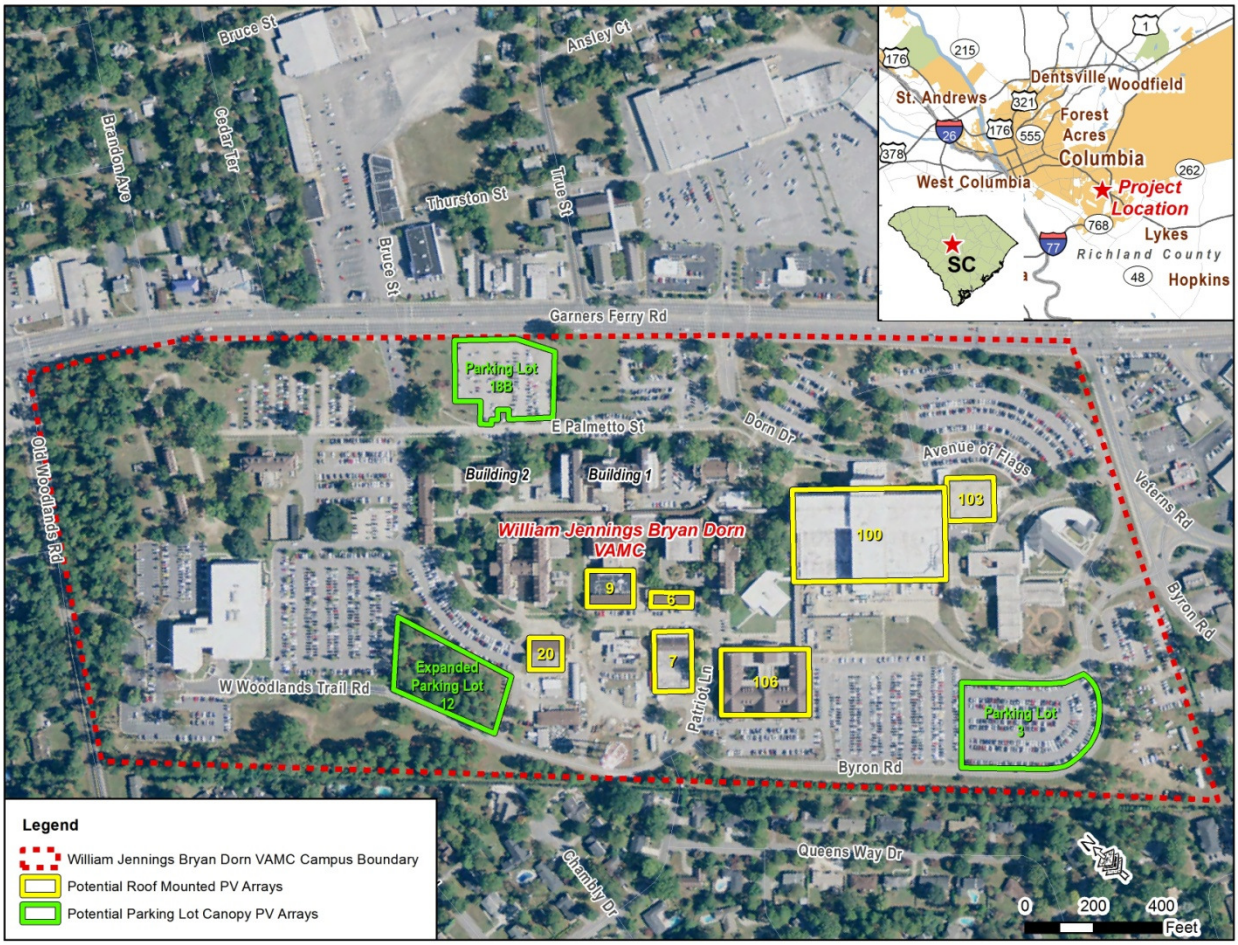

Figure 2. Proposed PV Array Locations

Currently, the Dorn VAMC plans to only implement the construction and operation of the ground-based parking lot PV systems and not the rooftop PV systems. However, the rooftop PVs are included in this EA analysis in order to maintain their viability as future options for the Dorn VAMC to meet the renewable energy requirements of the EOs 13423 and 13514, as well as the Energy Policy Act of 2005 as described in Section 1.2.

The PV arrays over existing parking lots would require the construction of elevated structural frames (e.g., carport structures), which would allow solar panels to be mounted without reducing the existing capacity for visitor parking. Typical carport structures are elevated structural frames over the existing on-grade parking lots as shown in Figure 3. The proposed PV arrays would be mounted to these structures. The capacity of these parking lots would not be altered over the long term. Construction would be phased to minimize any short-term disruption to onsite parking capacity; only portions of each existing parking area would be closed at any one time to install the proposed PV system.

The installation of the PV arrays would also be coordinated with other new or ongoing projects occurring at the Dorn VAMC, in order to minimize overall disruption to the facility and proceed as efficiently as possible.

Figure 3. Typical Carport PV Array

Based upon similar projects, it is estimated that construction would last approximately 150 days. Currently, initial project activities are planned to commence in 2014 or 2015.

Implementing all solar PV options presented in this EA could provide approximately 2,800 megawatt hours (MWh) at peak performance for electrical energy generation. Performance is also dependent on season (highest output in spring and fall), weather conditions (highest output in full sun), and time of day (highest output at mid-day). It is not expected that excess electrical power would be generated by the Proposed Action; therefore, electrical power generated by the Proposed Action would be consumed onsite by the Dorn VAMC. The proposed project would not allow power to be fed back to the main utility grid. The VA has not yet contracted the final design of the PV system.

The Proposed Action does not include batteries or other storage devices for electrical power generated by the PV System. In the event of a power failure, the PV arrays would not be equipped to provide backup power to the facility.

Prior to construction, the VA would obtain all required permits for the Proposed Action from appropriate government authorities, including required building permits. The VA would also work with the Dorn VAMC's electrical service provider (South Carolina Electric and Gas [SCE&G]), to appropriately coordinate and connect this project to the existing electrical infrastructure. The proposed PV system installation would be coordinated with current and future proposed construction on the property.

2.3 Alternatives Considered

The NEPA, CEQ Regulations, and 38 CFR Part 26 require that all reasonable alternatives be rigorously explored and objectively evaluated. Alternatives that are eliminated from detailed study must be identified along with a brief discussion of the reasons for eliminating them. For purposes of analysis, an alternative was considered "reasonable" only if it would enable the VA to accomplish the primary mission of providing a renewable (PV) energy source at the Dorn VAMC that meets the purpose of and need for the Proposed Action. "Unreasonable" alternatives would not enable the VA to meet the purpose of and need for the Proposed Action.

2.3.1 Alternatives Development (Screening Criteria)

The VA undertook a sequential planning and screening process, seeking viable alternatives for the Proposed Action. This process is summarized below:

- As part of a broad initiative by the VA to assess the potential for installation of renewable energy systems at VA properties across the United States (U.S.) to meet the requirements of the Energy Policy Act of 2005 and EOs 13423 and 13514, the VA identified the Dorn VAMC as a viable candidate for PV systems. The VA did not consider offsite locations, as these would not maximize the credits under the Energy Policy Act.

- As part of the feasibility study, the VA identified site-specific issues, constraints, opportunities, and options with respect to the installation and operation of solar PV systems. This study identified and applied site-specific screening criteria to identify the number of reasonable onsite locations, size, and type of PV arrays that would be suitable at the Dorn VAMC (see screening criteria, below).

The list below summarizes the screening criteria that were used by the feasibility study:

Structural Support: The structure proposed for a rooftop mounting location should be able to support the weight of a PV system and should be flat to facilitate installation.

Operation of the Facility: The PV systems should not interfere with the current or future proposed operations of the Dorn VAMC, including transportation, parking, infrastructure, and maintenance activities or sites. In addition, the proposed PV locations should not conflict with proposed future site development plans or projects.

Solar Exposure: In order to maximize potential energy output from each PV system, each system should be located to maximize the amount of sunlight it receives daily, without shading from adjacent structures or trees.

Light and Glare: The sensitive location of the systems should minimize the potential for light and glare affects to surrounding properties and land uses; existing and proposed land uses adjacent to the facility should not be taller than the proposed PV locations. This would simultaneously avoid current and future solar exposure limitation issues.

Accessibility: The PV location should be readily accessible for construction and maintenance purposes.

Aesthetics: The PV location should not detract from the visual aspects of the campus. The PV systems should not result in an adverse effect to the viewshed of any historic properties as defined under Section 106 of the NHPA.

Cost: The PV arrays should be installed in a manner that minimizes costs, such as the potential costs incurred through construction of new infrastructure to support the proposed project.

Environmental: Each proposed PV location must have few environmental concerns, such as water resources; floodplains and flooding; cultural or biological concerns; or other regulated environmental resources.

Based on the considerations indicated above, the VA identified 10 viable locations that would be included for analysis in this EA. Figure 2 identifies these locations. All other onsite locations evaluated in the feasibility study but dismissed, or onsite locations not evaluated in the feasibility study, failed to meet the VA's screening criteria and were subsequently eliminated from consideration (see Section 2.3.3).

2.3.2 Evaluated Alternatives

The alternatives evaluated for the purposes of this EA are listed below. As noted in Section 2.2, construction of the Proposed Action would be coordinated with other existing and proposed activities and projects. As required under CEQ Regulations, this EA considers the impacts of the Proposed Action with the other proposed onsite and nearby projects, as well as other past, present, and reasonably foreseeable future actions in this vicinity. The EA's cumulative impact analysis (see Section 3.4) presents this discussion.

Preferred Action Alternative (Proposed Action)

Under the Preferred Action Alternative, the VA would install and operate the Proposed Action as described in Section 2.2 and as shown in Figure 2. Through the VA's screening process, the VA determined this alternative to be the only reasonable action alternative that would meet all of the screening criteria, while achieving the purpose of and need for the Proposed Action.

The Preferred Action Alternative would ultimately result in seven roof-mounted PV arrays and three ground-mounted PV arrays. These options take into account the current condition of the buildings proposed for the rooftop arrays, the amount of available solar radiation, and impacts from future projects or maintenance needs. These locations have also been determined to be economically beneficial to the facility, based on the feasibility study (Antares 2013).

The VA has current plans to only pursue the three parking lot canopy arrays, but maintain the building rooftop PV configurations as potential options for the future. Thus, these rooftop arrays are included as part of the Proposed Action for this EA.

The proposed project would also involve the construction of an approximately 1.5-acre expansion area for Parking Lot 12. This area would be paved to create parking spaces and covered with a PV canopy array. All other proposed PV systems included in this Proposed Action would be located on existing rooftops or within the boundaries of existing paved or gravel parking lots.

No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. The Dorn VAMC would continue to receive the majority of its electricity from SCE&G. No additional renewable PV energy sources would be installed on the property. The Dorn VAMC would not contribute to the VA's ability to meet the requirements set forth in EO 13423, EO 13514, and the Energy Policy Act of 2005.

While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, this alternative was retained to provide a comparative baseline against which to analyze the effects of the Proposed Action, as required under the CEQ Regulations (40 CFR 1502.14). The No Action Alternative reflects the *status quo* and serves as a benchmark against which the effects of the Proposed Action can be evaluated.

2.3.3 Alternatives Eliminated From Detailed Consideration

As described in Section 2.3.1, the VA eliminated alternative onsite roof- or ground-mounted PV locations through the screening process. Each of the initially considered locations, with the exception of the locations retained for further analysis in this EA, failed to meet one or more of the required screening criteria.

Further, the VA eliminated the potential solar thermal projects identified in the feasibility study. These included the candidate locations of Buildings 100 (main hospital), 9 (offices and research), and 8 (boiler house) (Antares 2013). The Dorn VAMC decided to dismiss these thermal alternatives due to previous experience with a leaking roof from a solar thermal system on Building 103, which has since been removed.

SECTION 3: ENVIRONMENTAL IMPACT ANALYSIS

3.1 Introduction

This section provides appropriate environmental, cultural, and socioeconomic baseline information and identifies and evaluates the individual or cumulative environmental and socioeconomic changes likely to result from the implementation of the considered alternatives at the Dorn VAMC. The Region of Influence (ROI) for this EA is relatively small and includes the Dorn VAMC and the immediately adjoining properties.

In compliance with the NEPA and CEQ Regulations, this section focuses on those resources and conditions potentially subject to effects. The VA, as encouraged by the CEQ Regulations, endeavors to keep NEPA analyses as concise and focused as possible. This is in accord with CEQ Regulations at 40 CFR Parts 1500.1(b) and 1500.4(b): "…NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail….prepare analytic rather than encyclopedic analyses."

Resource information for this EA was obtained through the review of existing environmental documents for the Dorn VAMC, data provided through the IICEP process, a 1-day onsite visit and interviews with VA representatives on 19 February 2014, and ongoing correspondence with the Dorn VAMC. For the purposes of this EA, no in-depth studies or detailed field investigations were conducted onsite to determine the extent of resources.

3.2 Resources Analyzed

Table 1 presents the Technical Resource Areas that are dismissed from further analysis in this EA, those that are fully analyzed, and the rationale for dismissing certain Technical Resource Areas. In conducting this analysis, a qualified Subject Matter Expert (SME) reviewed the potential direct, indirect, and cumulative effects of the Proposed Action and each of its considered alternatives relative to each Technical Resource Area. The SME carefully analyzed and considered the existing conditions of each Technical Resource Area within the Proposed Action's ROI. Through this analysis, it was determined that, for several Technical Resource Areas, no adverse effects would occur, notably potentially significant adverse effects. Table 1 and Section 3.3 identify and discuss those Technical Resource Areas that are retained for further analysis.

3.3 Resources Considered

As shown in Table 1, Technical Resource Areas retained for further analysis include air quality and GHGs; biological resources; cultural resources; solid and hazardous waste; surface water resources; transportation and parking; utilities; wetlands and floodplains; and cumulative effects. The following subsections provide a concise summary of the current affected environment within the ROI for each of these resource areas, as well as an analysis of the potential effects to each resource area from implementation of the No Action Alternative and the Proposed Action (Preferred Action Alternative).

Table 1. Technical Resource Areas Assessed in the Environmental Assessment

Technical Resource Area	Dismissed?	Rationale
Aesthetics	Yes	There are no aesthetically sensitive locations within the viewshed of the Dorn VAMC. The existing view from the homes of nearby residents is of a modern medical facility. The existing facility is equipped with lighting throughout the parking areas, pedestrian walkways, and access points. During the construction and installation of PV systems at the Dorn VAMC, the visual and aesthetic characteristics of areas undergoing development would be temporarily altered by the use of construction equipment and the delivery and stockpiling of construction materials. Following completion of construction, the PV systems would remain as permanent visual features within the viewshed; however, the principal visual features of the facility would remain consistent with existing conditions. These effects would be negligible. Thus, this resource area has been eliminated from further discussion within this EA.
Air Quality and Greenhouse Gases (GHGs)	No	The United States Environmental Protection Agency (USEPA) has designated Richland County as an *attainment* area for all criteria pollutants. Potential short-term, less-than-significant adverse effects associated with construction of the proposed PV system would occur. Potential long-term, beneficial effects resulting from the ability to generate electricity without producing emissions would occur. For these reasons, potential impacts to air quality and GHGs are discussed within this EA.
Biological Resources (vegetation, wildlife, threatened and endangered species)	No	As part of the Proposed Action, the Dorn VAMC would expand existing Parking Lot 12, which would require the removal of approximately 40 loblolly pine trees. For this reason, potential impacts to biological resources are discussed within this EA. USFWS was consulted regarding potential effects to biological resources, but a response has not been received as of the date of this EA.
Community Services	Yes	The VA does not anticipate the need to hire new permanent employees as a result of the Proposed Action; threfore, no increase in population would occur and thus no increased demand for community services (e.g., emergency, fire, and police services; schools; libraries; places of worship). Thus, this resource area has been eliminated from further discussion within this EA.
Cultural Resources	No	The Dorn VAMC was listed on the National Register of Historic Places in 2009 as a historic district. The historic district represents a grouping of a total of 20 resources, including 19 buildings and a covered walkway as well as historic landscaped lawns, which retain the historic design features of the original facility. Of the buildings proposed for installation of solar PV systems, Buildings 6, 7, 9, and 20 are located within the historic district boundaries. Building 6 is the only contributing resource to the historic district. Visual impacts to these and other resources within the Area of Potential Effects for the proposed project must be evaluated under Section 106 of the NHPA. As a result, potential impact to cultural resources are further discussed within this EA. SHPO was consulted regarding potential effects to cultural resources, but a response has not been received as of the date of this EA.
Geology, Topography, and Soils	Yes	No effects to geology or topography would occur. Potential staging areas for construction equipment and materials would not likely result in adverse effects to soils as the paved areas of the parking lots would be used, as well as the designated construction laydown area in Parking Lot 2. Construction of the Parking Lot 12 expansion would require approximately 1.5 acres of land disturbance for grading and paving of the parking lot. The impacts would be localized topographic changes due to minor grading, and the effects would be negligible. Operation of the PV systems would have no significant effects to geology or soil resources. No significant adverse effects are anticipated. Thus, this resource area has been eliminated from further discussion within this EA.
Groundwater	Yes	The Proposed Action would change the permeability of approximately 1.5 acres of land from an open grassed and treed area to a proposed impervious paved surface for the expansion of Parking Lot 12. However, this would not result in a significant change in capacity of available groundwater resources, significantly adversely affect groundwater quantity or quality, or conflict with established water rights. Thus, this resource area has been eliminated from further discussion within this EA.

Table 1. Technical Resource Areas Assessed in the Environmental Assessment

Technical Resource Area	Dismissed?	Rationale
Land Use	Yes	The Proposed Action would not affect land use planning or zoning. The Dorn VAMC property is owned by the federal government and does not fall under any zoning classifications. The Proposed Action would be consistent with the surrounding property and has been carefully planned in consonance with existing and proposed onsite land uses. Thus, this resource area has been eliminated from further discussion within this EA.
Noise	Yes	According to a noise study conducted in 2012, average noise levels at the Dorn VAMC were found to be at or below the Richland County Code 18-3 noise limit of 62 A-weighted decibels (dBA) and below the city of Columbia Section 8-93 maximum permitted commercial sound levels of 79 dBA at each of the five data collection locations along the south property, adjacent to a residential neighborhood (ECS 2012). The Proposed Action is not expected to result in any appreciable changes in the noise environment. Noise levels in the project area would not exceed standards as determined by the federal, state, and/or local government. The construction and installation activities would require use of heavy equipment that would generate short-term increases in noise at the Dorn VAMC. While noise would be audible to nearby residents, hospital staff, and patients, it would not be extensive. Contractors would limit construction and installation of the proposed project components to occur primarily during normal weekday business hours. Mitigation measures would be implemented through routine best management practices (BMPs) to minimize noise effects during construction, including scheduling construction to avoid objectionable time periods and utilizing construction equipment noise control features such as exhaust mufflers and engine enclosure panels on construction equipment. There would be no sound from the operation of the PV systems, and there would be no long-term changes in the noise environment as a result of the Proposed Action. Thus, this resource area has been eliminated from further discussion within this EA.
Socioeconomics (economy, population, housing, employment, Protection of Children, and Environmental Justice)	Yes	Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. The Proposed Action is not expected to result in any appreciable effects to the local or regional socioeconomic environment. The Proposed Action would have negligible beneficial economic effects associated with employment of construction personnel, transportation of goods and materials to the construction sites, and the long-term reduction in electricity costs for the VA. There would be no permanent change in sales volume, income, employment, or population as a result of the Proposed Action; therefore, there would be no effects on public services such as law enforcement, fire protection, medical care, schools, family support services, shopping, or recreation facilities. There would be no effects on Environmental Justice (EO 12898) or the Protection of Children (EO 13045), as the Proposed Action would not result in disproportionate adverse environmental or health effects on low-income or minority populations or children. Thus, this resource area has been eliminated from further discussion within this EA.
Solid and Hazardous Wastes	No	Due to the age of the buildings onsite, the potential exists for asbestos-containing materials (ACM) and lead-based paint to be encountered during construction and would require proper management and disposal. Also, potential adverse effects could result from the decommissioning of the PV systems at the end of their useful life. For these reasons, potential impacts to solid and hazardous waste management are discussed within this EA.
Surface Water Resources (Watershed, Rivers, Lakes, and Coastal Zones)	No	There are no surface water features within the boundaries of the campus. The closest surface water feature is Gills Creek, located approximately 3,500 feet from the western corner of the campus. The expansion of Parking Lot 12 would increase the amount of impervious cover at the site by approximately 1.5 acres. Temporary stormwater management control measures would be required during construction, and permanent control upgrades would be required to manage stormwater from the newly expanded parking lot. For this reason, this resource area is discussed within this EA.

Table 1. Technical Resource Areas Assessed in the Environmental Assessment

Technical Resource Area	Dismissed?	Rationale
Transportation and Parking	No	During construction of the PV canopy arrays over existing Parking Lots 3 and 18B, it is expected that these lots would require temporary closure, either completely or partially. The expansion of Parking Lot 12 would add approximately 240 parking spots to the facility. For this reason, potential impacts to transportation and parking are discussed within this EA.
Utilities	No	The Proposed Action would have a long-term positive effect on utilities in the area. For this reason, potential impacts to utilities are discussed within this EA.
Wetlands and Floodplains	No	Two small floodplain areas exist within the Dorn VAMC campus boundaries, equaling approximately 1.1 acres of floodplain on the property (FEMA 2013). For this reason, potential impacts to this resource area are discussed within this EA.
Cumulative Effects	No	Analysis required per CEQ Regulations.

3.3.1 Air Quality and Greenhouse Gases

The U.S. Environmental Protection Agency (USEPA) Region 4 and the South Carolina Department of Health and Environmental Control (SCDHEC) Bureau of Air Quality, regulate air quality in South Carolina. The Clean Air Act (CAA) (42 USC. 7401-7671q), as amended, gives USEPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) that set acceptable concentration levels for seven criteria pollutants: particulate matter with a diameter of 10 microns or less, fine particulate matter with a diameter of 2.5 microns or less, sulfur dioxide, carbon monoxide, nitrogen oxides, ozone, and lead. Short-term standards (1-, 8-, and 24-hour periods) have been established for pollutants that contribute to acute health effects, while long-term standards (annual averages) have been established for pollutants that contribute to chronic health effects. Additionally, the CAA, as amended in 1990, places most of the responsibility to achieve compliance with NAAQS on individual states. The SCDHEC Bureau of Air has instituted the Ambient Air Quality Standards in Regulation 61-62.5, Standard No., which are the same as the NAAQS but also include state standards for gaseous fluorides.

Certain geographic areas, typically defined by county, that are in violation of the NAAQS are classified as *nonattainment* areas and those in accordance with the NAAQS are classified as *attainment* areas. *Maintenance* areas are attainment areas that were formerly designated nonattainment, and have implemented plans to maintain their attainment status. States that contain nonattainment areas must adopt a State Implementation Plan (SIP) that is a compilation of goals, strategies, schedules, and enforcement actions designed to lead the state into compliance with all NAAQS. The SCDHEC operates 33 ambient air quality monitoring sites throughout the state (SCDHEC 2014). The Dorn VAMC is located in Richland County, which is currently designed by the USEPA as an attainment area for all criteria pollutants (USEPA 2014a).

The existing climate of Columbia is hot in the summer and cool in the winter. The warmest month is July with a monthly average maximum temperature of 95.2 degrees Fahrenheit (°F), while the coldest month is January with a monthly average minimum temperature of 36.5°F. The annual average precipitation total is 47.1 inches. Precipitation is fairly evenly distributed throughout the year with July having the highest average rainfall of 5.2 inches (Idcide 2014).

GHGs are components of the atmosphere that contribute to the greenhouse effect and global warming. Some GHGs occur naturally in the atmosphere, while others result from human activities such as the burning of fossil fuels. Federal agencies, states, and local communities address global

warming by preparing GHG inventories and adopting policies that would result in a decrease of GHG emissions. The six most predominant GHGs are: carbon dioxide (CO_2), nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (USEPA 2014b). Although GHGs occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. On a global scale, fossil fuel combustion added approximately 33 $x10^9$ tons (30 $x10^9$ metric tons) of CO_2 to the atmosphere in 2011, of which the U.S. accounted for about 16 percent (USEPA 2014c). The Earth's average surface air temperature has increased by about 1.4ºF in the last 100 years. The eight warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 2005 (USEPA 2014d).

No Action Alternative

Implementation of the No Action Alternative would result in no impact to the ambient air quality or climate. Construction of the Proposed Action would not occur, and no reduction in fossil fuel-based electricity use would be realized. Ambient air quality would remain unchanged when compared to existing conditions.

Proposed Action

Short-term minor adverse and long-term beneficial effects on air quality would be expected. The short-term minor adverse effects would be from air emissions during construction and installation of the PV systems. Long-term beneficial effects would occur from indirect reductions in the use of fossil-fuel based electricity. Based on the following analysis, construction emissions would not exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.

The General Conformity Rule requires federal agencies to determine whether their action(s) would increase emissions of criteria pollutants above pre-set threshold levels (40 CFR 93.153(b)). These *de minimis* (of minimal importance) rates vary depending on the severity of the nonattainment and geographic location. Since Richland County is in attainment, the requirements of the General Conformity Rule are not applicable. However, the total direct and indirect emissions associated with the construction or operation of the PV systems would not exceed the applicability threshold of 100 tons per year (tpy) for any criteria pollutant (Table 2). Appendix A provides a detailed breakdown of the construction emissions shown in Table 2.

Table 2. Proposed Action Emissions

Activity	Annual Emissions (tpy)					
	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$
Construction	2.3	3.1	0.5	<0.1	1.0	0.2
Operation	<*none*>					
Acronyms: *CO – carbon monoxide; NOx – nitrogen oxides; PM_{10} – particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ – particulate matter with a diameter of 2.5 microns or less; SO_x – sulfur oxides; VOC – volatile organic compound.*						

The Proposed Action would not include any new stationary sources of air emissions. No air permits to construct or operate the Proposed Action would be required. The VA and any contractors would comply with all applicable air pollution control regulations. During construction, reasonable measures should be implemented to prevent unnecessary amounts of particulate matter from becoming airborne. Such precautions would include:

- Use of water for control of dust during construction operations;
- Covering open equipment used for conveying or transporting material likely to create objectionable air pollution when airborne; and
- Promptly removing spilled or tracked dirt or other materials from paved streets.

The Proposed Action would result in a long-term minor reduction in the use of fossil fuel-based electricity and associated GHG emissions. Although minor GHG emissions would be associated with the manufacturing, transportation, and construction processes, the Proposed Action would reduce the amount of CO_2 released by approximately 2,360 tpy in the long term (Table 3). This is equivalent to annual GHG emissions from 450 passenger vehicles (USEPA 2014e). In addition, the CEQ recently released draft guidance on when and how federal agencies should consider GHG emissions and climate change in NEPA analyses. The draft guidance includes a presumptive effects threshold of 25,000 metric tons of CO_2 equivalent emissions from an action (CEQ 2010). The GHG emissions associated with the Proposed Action are well below this proposed CEQ threshold and actually would represent a long-term reduction in CO_2 emissions (as opposed to an increase).

Table 3. Long-Term Reduction in CO_2 Equivalents from the Proposed Action

PV Systems	Number of Sites	System Size (kilowatt)	Estimated Annual Power Production (kilowatt hours)	Carbon Dioxide (CO_2) Equivalents (tpy [metric tpy])
Seven Rooftop Sites Three Parking Lot Sites	10	2,000	2,800,520	2,360 (2,140)

Source: USEPA 2014e.

3.3.2 Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species)

Vegetation communities in the vicinity of Columbia, South Carolina range from hardwood communities to xeric longleaf pine communities. Natural longleaf pine (*Pinus palustris*) is the predominant species and forms pure stands on sandy ridges and upper slopes. It is often mixed with shortleaf (*P. echinata*), pond (*P. serotina*), and Virginia (*P. virginiana*) pines. Loblolly pine (*P. taeda*), an introduced species, also occurs frequently throughout the region and dominates the area proposed for the expansion of existing Parking Lot 12. Oak species (*Quercus* spp.), hickory species (*Carya* spp.), red maple (*Acer rubrum*), and sycamore (*Platanus occidentalis*), among others, also maintain a regional presence. Local, native, understory species include yaupon holly (*Ilex vomitora*), dogwood (*Cornus florida*), wax myrtle (*Myrica cerifa*), and others such as sparkleberry (*Vaccinium arboreum*), wild rosemary (*Ceratiola ericoides*), and sand myrtle (*Leiophyllum buxifolium*).

Common wildlife in the region include white-tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanusi*), fox squirrel (*Sciurus nigeri*), eastern gray squirrel (*Sciurus carolinensisi*), raccoon (*Procyon lotor*), and opossum (*Didelphis marsupialis*). Songbirds, many of which are neotropical migrants, include the red-eyed vireo (*Vireo olivaceus*), cardinal (*Cardinalis cardinalis*), tufted titmouse (*Parus bicolor*), ruby-throated hummingbird (*Archilochus colubris*), rufous-sided towhee (*Pipilo erythrophthalmus*), wood thrush (*Hylocichla mustelina*), summer tanager (*Piranga rubra*), blue-gray gnatcatcher (*Polioptila caerulea*), hooded warbler (*Wilsonia citrina*), Canada goose (*Branta canadensis*), and Carolina wren (*Thryothorus ludovicianus*).

Special status species are defined as those plant and animal species listed as threatened, endangered, candidate, or species of concern by the USFWS, as well as those species with special status

designations by the state of South Carolina. The Endangered Species Act (ESA) protects federal-listed threatened and endangered plant and animal species, as well as their critical habitat. Candidate species are species that the USFWS is considering for listing as threatened or endangered but for which a proposed rule has not yet been developed. Candidates do not have legal protection under the ESA. In some instances, candidate species may be emergency listed if the USFWS determines that the species' population is at risk due to a potential or imminent impact. The USFWS encourages federal agencies to consider candidate species in their planning processes because these species may be listed in the future and, more importantly, because current actions may prevent future listing.

The USFWS lists six federal-listed species, all currently designated as endangered: red-cockaded woodpecker (RCW) (*Picoides borealis*), wood stork (*Mycteria americana*), Carolina heelsplitter (*Lasmigona decorata*), smooth coneflower (*Echinacea laevigata*), rough-leaved loosestrife (*Lysimachia asperolaefolia*), Canby's dropwort (*Oxypolis canbyi*) (USFWS 2014). Due to a lack of suitable aquatic habitat, the wood stork, Carolina heelsplitter, and Canby's dropwort are not anticipated to occur within the boundaries of the Dorn VAMC.

The state of South Carolina lists two additional species as state-endangered, Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) and Carolina darter (*Etheostoma collis*), and one species as state-threatened, pine barrens treefrog (*Hyla andersonii*) (SCDNR 2012). Due to the lack of suitable surface water habitat within the Dorn VAMC campus, the Carolina darter and pine barrens treefrog are not likely to occur within the site or be affected by the Proposed Action.

No Action Alternative

Under the No Action Alternative, no construction would take place. There would be no effects to biological resources under this alternative. Therefore, no direct, indirect, or cumulative impacts to vegetation, wildlife, or special status species would occur.

Proposed Action

As part of the Proposed Action, the Dorn VAMC would expand existing Parking Lot 12 prior to installation of a canopy-style PV array at that location. The 1.5-acre area proposed for the parking lot expansion is currently a grass-covered area containing approximately 40 loblolly pine trees. However, these trees exist within the boundaries of the developed Dorn VAMC. This is a disturbed area within an urban city. As such, these trees do not represent high-quality habitat; the loss of these 40 trees would not significantly affect the overall population of the species, nor the species that inhabit the area to be disturbed. Therefore, this loss of local habitat would represent a less-than-significant adverse impact on the local vegetation community.

Mobile species potentially found within this disturbed area (i.e., squirrels, etc.) would likely move from the area and relocate to another local area upon initiation of Proposed Action construction activities. Loblolly pine trees (like the trees planned for removal during expansion of the existing Parking Lot 12) support populations of the federally-endangered RCW throughout the state of South Carolina. RCW nest in roost cavities excavated in mature loblolly, longleaf, shortleaf, slash, and pond pine, as well as bald cypress. Habitat consists of open, mature pine woodlands, rarely deciduous or mixed pine-hardwoods located near pine woodlands. Optimal habitat is characterized as a broad savannah with a scattered overstory of large pines and a dense groundcover containing a diversity of grass, forb, and shrub species (NatureServe 2014). Photographs taken during the site visit (see Figure 4 below) show a lack of any understory vegetation within the area proposed for the Parking Lot 12 expansion. As such, the vegetation present does not appear to represent suitable RCW habitat.

Figure 4. Views of Parking Lot 12 Expansion Area

Rafinesque's big-eared bat inhabits forested regions, characteristically roosting in abandoned buildings or tree cavities near water (SCDNR undated). The species forages exclusively on moths in mature forests, but the majority of feeding occurs in young pine stands. Colonies are small, usually consisting of 5-12 individuals, but require a home range of up to approximately 230 acres (Bunch et al. undated). The removal of 40 loblolly pine trees could potentially reduce foraging habitat if any Rafinesque's big-eared bats are present in the vicinity of the site. As this species will abandon a roost if disturbed by humans (SCDNR undated), none of these bats are likely to inhabit the disturbed, developed, urban Dorn VAMC campus.

Due to the lack of understory species, the only vegetative species likely to be affected is loblolly pine. Loblolly pine is an important, though introduced, tree species within the state. However, the 40 loblolly trees occupying the proposed Parking Lot 12 expansion area within the developed Dorn VAMC are not likely to provide the required habitat for RCW. The existing pine stand could potentially provide foraging habitat for Rafinesque's big-eared bat; however, potential adverse impacts to this species and other special status and migratory species could be reduced or avoided with implementation of appropriate best management practices (BMPs), including:

- Avoiding the clearing of loblolly pine trees during the migratory bird nesting season (April through July) to reduce impacts to species protected under the Migratory Bird Treaty Act. If it is not practical to clear trees outside of this time frame, a qualified biologist should survey the site to ensure that no active nets are disturbed.

- A qualified biologist should survey the site to ensure that no RCW inhabit the loblolly pines proposed for clearing. Should RCW be found within the Dorn VAMC, VA would consult with USFWS to determine the best way to reduce or avoid potential adverse impacts.

Other components of the Proposed Action include rooftop PV arrays and parking lot canopy arrays installed within existing, disturbed parking areas. Installation and operation of PV systems in these areas are not likely to impact vegetation, wildlife, or special status species as the rooftop PVs would require no ground disturbance, and the canopy PVs would be installed on previously disturbed paved or gravel areas.

Due to the lack of suitable habitat within the Dorn VAMC and the nature of the Proposed Action, the Proposed Action is not anticipated to have a noticeable adverse impact on wildlife or special status wildlife species. Only a less-than-significant effect to vegetation and special status vegetation species would be anticipated, due to the removal of 40 mature trees.

3.3.3 Cultural Resources

The Dorn VAMC was listed on the National Register of Historic Places (NRHP) in 2009 as a historic district. Earliest buildings were constructed in 1932 with later buildings completed during the 1930s and 1940s. The facility experienced large expansion in the 1970s. The historic district represents a grouping of a total of 20 resources, including 19 buildings and a covered walkway as well as historic landscaped lawns, which retain the historic design features of the original facility. Only those buildings dating from the original construction period in the 1930s are contributing resources to the historic district. Seven buildings within the historic district boundaries constructed from the 1940s and later do not contribute to the historic district (National Park Service 2009).

Of the buildings proposed for installation of solar PV systems, Buildings 6, 7, 9, and 20 are located within the historic district boundaries. Building 6 is the only contributing resource to the historic district. All other proposed buildings are non-contributing to the historic district. Buildings 100, 103 and 106 are outside the boundaries. There are no other buildings or structures listed on or eligible for the NRHP in the vicinity of the proposed project. There are no known archeological sites in the project area.

In this EA, impacts to historic properties are described in terms of type, duration, and intensity, which is consistent with the CEQ regulations for implementing NEPA. These impact analyses are intended, however, to comply with the requirements of both NEPA and Section 106 of the NHPA. In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 (36 CFR Part 800, *Protection of Historic Properties*), impacts to historic structures, cultural landscapes, and archeological resources were identified and evaluated by: (1) determining the Area of Potential Effects (APE); (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the NRHP; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the NRHP; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either *Adverse Effect* or *No Adverse Effect* must be made for affected NRHP-eligible cultural resources. An Adverse Effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP (e.g., diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5, *Assessment of Adverse Effects*). A determination of No Adverse Effect means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the NRHP.

The APE for structures is anticipated to be no more than 500 feet beyond the limits of each PV system location. For archeology, the APE will be limited to the ground disturbance associated with the concrete piers to support the PV canopies and trenching for conduit runs. No ground disturbance is anticipated for the rooftop installations.

No Action Alternative

Under the No Action Alternative, no construction would take place. There would be no effects to cultural resources under this alternative. Therefore, no direct, indirect, or cumulative impacts to historic structures or archeology would occur.

Proposed Action

Historic Structures. The PV systems planned for rooftop installations would be placed upon non-contributing buildings within and outside of the historic district. Only one contributing resource, Building 6, is being considered for PV array systems. The installations on Buildings 100, 103, and 106 are located at a minimum of 100 feet or more outside the historic district boundary. Buildings 7, 9, and 20 are non-contributing buildings located within the historic district and south of the main body of historic structures in the maintenance and utility area of the campus. Building 6 is also located in this area. The proposed PV systems within the historic district would be largely installed on flat roof sections and sloped sections that face away from the main body of historic buildings. Installation on Building 6 would occur on the southwest roof slope, facing away from the main body of historic structures. Therefore, impacts to historic structures are expected to be direct and long-term, but minor. In terms of Section 106, this would equate to a finding of No Adverse Effect.

The PV installation on Parking Lot 3 is located outside of the APE. PV installation on the Parking Lot 12 expansion area would be sufficiently distanced from the district and would not be a significant impact to the historic district. The PV installation within Parking Lot 18B would be located north of Buildings 1 and 2 and would have the greatest potential for visual impacts. However, none of the installations would significantly impact those features that make the district eligible for the NRHP. Impacts to historic structures are expected to be indirect and long-term, but minor. In terms of Section 106, this would equate to a finding of No Adverse Effect.

Archeology. Soil disturbance for PV installations within Parking Lot 3 and Parking Lot 18B would be limited to concrete piers and trenching for conduit and would not represent major soil disturbance. Soil disturbance for the Parking Lot 12 expansion would be limited to the removal of trees and minor grading as well as the installation of concrete piers and trenching. No impacts to archeological resources are expected from the proposed project.

Conclusion. Minor, long-term direct and indirect impacts to historic structures are expected under the Proposed Action. The rooftop installations would be largely unseen from ground level, and those on sloped roofs would face a southwesterly direction and not face the concentration of historic structures within the historic district. The parking lot installations would not result in significant visual impacts to surrounding properties. No impacts to archeological resources are expected. In terms of Section 106 of the NHPA, this would result in a finding of No Adverse Effect to any properties listed in or eligible for the NRHP. Concurrence with this finding has been requested from the SHPO. A Section 106 Project Review Form with supplemental information and determination of No Adverse Effect has been forwarded to that office. No response has been received at the date of this EA.

3.3.4 Solid and Hazardous Waste

The SCDHEC administers South Carolina's hazardous and solid waste programs and enforces the hazardous and non-hazardous waste management rules. Hazardous waste and solid waste management activities must comply with regulations found in Title 44, Parts 56 and 96, respectively, of the South Carolina Code of Laws, as well as applicable federal regulations under 40 CFR 260-268, 273, and 279, and 29 CFR 1910.

The Dorn VAMC is classified as a Conditionally Exempt Small Quantity Hazardous Waste Generator by the USEPA and state authorities (USEPA ID# SC4360090001). This designation indicates that the Dorn VAMC generates less than 220 pounds (100 kilograms) of hazardous waste and/or not more than 2.2 pounds (1 kilogram) of extremely hazardous waste each calendar month. Hazardous waste at the Dorn VAMC is managed in satellite accumulation areas across campus and stored in the designated hazardous waste storage area. Wastes are collected and hauled offsite by licensed contractors for

disposal or recycling at permitted facilities. Solid and hazardous waste generated at the Dorn VAMC may include used oil, spent solvents, waste paints, food wastes, and general refuse. Regulated medical wastes (biohazardous wastes) and universal wastes are also generated by the Dorn VAMC.

Currently, there are no active underground storage tanks (USTs) at the Dorn VAMC since they were all removed or permanently closed in the mid-1990s. These were closed using USEPA-mandated protocols including emptying the tank, a site assessment, and appropriate clean-up and post clean-up site testing. The Dorn VAMC has eight active aboveground storage tanks (ASTs) for storage of diesel fuel, fuel oil, gasoline, and E-85. The ASTs primarily contain fuel oil or diesel to supply fuel for emergencies (e.g., generators or back-up fuel for the boilers). Fuel for the Dorn VAMC's fleet vehicles and maintenance equipment is provided by the gasoline tank, E-85 tank, and the split diesel tank. The storage tanks are regulated by South Carolina Regulation 62.1, Section II(B)(2)(h).

No Action

Under the No Action Alternative, the Dorn VAMC would continue its current operations and would generate the same types and quantities of hazardous and non-hazardous wastes. Wastes would continue to be collected and transported for offsite disposal or recycling in accordance with federal, state, and local regulations. No changes in existing waste streams or adverse effects would occur.

Proposed Action

The Proposed Action would potentially generate a short-term increase in the volume of construction debris (solid waste) during construction; however, the quantity of waste generated from the Proposed Action would be minimal and recycling of materials would be performed to the extent possible.

The Proposed Action would result in short-term, less-than-significant adverse impacts due to the increased presence and use of construction-related hazardous and toxic materials and wastes (HTMW). During construction, a small increase in construction vehicle traffic would increase the likelihood for release of vehicle operating fluids (e.g., oil, diesel, gasoline, antifreeze, etc.) and maintenance materials. Also, contaminated non-native fill material may also be encountered during minor excavation activities. Implementation of standard construction BMPs would serve to ensure this impact is further minimized.

Due to the age of the buildings onsite, the potential exists for asbestos-containing materials (ACM) and lead-based paint to be encountered during construction, which would require proper management and disposal. The main hospital building (Building 100) and other flat-roof buildings do not contain ACM, but buildings with angled roofs are suspect for ACM. Due to the possibility of encountering ACM, the suspect locations would be sampled, and any such waste would be disposed of properly.

During normal operations of the PV systems, no increase in solid waste is expected. In the event of severe damage to any of the PV systems, a small amount of hazardous materials might be released to the environment. PV systems typically contain heavy metals such as lead (solder), cadmium, and selenium. These materials are a part of any PV array and are only present in small quantities. As the potential for contamination from these materials is minimal and would only occur during catastrophic events, this is considered a long-term, less-than-significant, adverse impact. During operation, the VA would conduct ongoing and regular maintenance of the PV systems. Following any catastrophic event, the VA would repair any damage to the PV systems and rapidly remediate any minor releases in accordance with federal, state, and local requirements. No batteries or generators are proposed for storage or continuation of PV system power.

At the end of their useful life (estimated to be 20 to 25 years), the PV systems would be decommissioned. If waste PV systems are sent to a municipal waste incinerator, the heavy metals would gasify and could be released to the atmosphere. If waste PV systems are sent to a municipal solid waste landfill for disposal, they have the potential to leach heavy metals into the groundwater (Markvart and Castaner 2003). To avoid such adverse effects, the VA would recycle or dispose of the waste PV systems in compliance with all existing federal, state, and local regulations governing the characterization and disposal of waste; therefore, no significant adverse effects associated with the disposal of the PV systems are expected.

The Proposed Action would not result in a substantial increase in the generation of solid or hazardous substances or wastes; increase the exposure of persons to hazardous or toxic substances; increase the presence of hazardous or toxic materials in the environment; or place substantial restrictions on property use due to hazardous waste, materials, or site remediation.

3.3.5 Surface Water Resources (Watershed, Rivers, Lakes, and Coastal Zones)

The Dorn VAMC is located in the Gills Creek Watershed (Hydrologic Unit Codes [HUC] 03050110-0201, -0202, and -0203) of the Congaree River Basin (SCDHEC 2013a). As stated earlier, there are no surface water features within the boundaries of the campus. The closest surface water feature is Gills Creek, located approximately 3,500 feet from the western corner of the campus.

The National Pollutant Discharge Elimination System (NPDES) Permit Program was created by Section 402 of the 1972 Federal Clean Water Act. In 1975, the SCDHEC Bureau of Water received authority from the USEPA to administer the NPDES Permit Program in South Carolina. As such, this agency is responsible for the permitting, compliance, monitoring, and enforcement activities of the program (SCDHEC 2013b). The SCDHEC is responsible for managing the state's stormwater program. The program requires all construction sites of 1 acre or more, many industrial sites, and other regulated facilities to obtain stormwater permit coverage.

As part of the Proposed Action, the Dorn VAMC would expand existing Parking Lot 12 prior to installation of a canopy-style PV array at that location. The area proposed for the parking lot expansion is currently a grass-covered area containing approximately 40 loblolly pine trees and picnic tables. This 1.5-acre area would include 240 new parking spaces.

No Action Alternative

Under the No Action Alternative, the VA would not construct the proposed PV systems at the Dorn VAMC, the expansion of Parking Lot 12 would not occur, and no effects to water resources would occur.

Proposed Action

The expansion of Parking Lot 12 would increase the amount of impervious cover at the site by approximately 1.5 acres. Temporary stormwater management control measures would be required during construction, and permanent control upgrades would be required to manage stormwater from the newly expanded parking lot.

Section 438 of the Energy Independence and Security Act of 2007 establishes strict stormwater runoff requirements for federal development projects. The sponsor of any development or redevelopment project involving a federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to

the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow. This would be taken into consideration for this project.

The city of Columbia requires that all construction activities resulting in disturbance of 5,000 square feet or more submit a Land Disturbance Permit application to the city. The application package includes, among other things, the preparation and implementation of a project-specific Stormwater Pollution Prevention Plan (SWPPP) for all construction activities. This plan would identify BMPs to reduce and control erosion and construction site runoff and would implement spill prevention and control measures on construction equipment, reducing the potential for adverse impacts during construction.

A NPDES General Permit for Stormwater Discharges from Construction Activities (SCR100000) issued by the SCDEHC would also be required to manage stormwater runoff during construction activities associated with the Proposed Action.

Appropriate erosion and sediment control BMPs would be implemented during construction to reduce stormwater and sediment runoff to the extent practicable. Such BMPs may include:

- Installing appropriate silt fencing and/or other appropriate erosion-control measures around the perimeter of the Parking Lot 12 expansion area construction footprint prior to construction, notably on downslope areas.

- Using straw bales as and where necessary to further minimize offsite erosion potential.

- Seeding the unpaved disturbed area with native vegetation immediately upon the completion of construction.

Any spills occurring during construction would be managed using appropriate pollution prevention control measures.

Operation of the expanded parking lot would slightly increase net stormwater runoff from the site, resulting in minor, long-term direct impacts. However, in comparison to the amount of stormwater runoff currently generated at the facility from existing parking areas, this increase is expected to be minimal.

3.3.6 Transportation and Parking

The Dorn VAMC is accessible from Interstate (I-) 77, which is a north-south highway extending from Ohio to North Carolina. The Dorn VAMC is located along U.S. Route 76/U.S. Route-378, Garners Ferry Road, which runs east-west, directly through the city of Columbia.

The main entrance to the facility is located at the northeast gate on Dorn Drive, which is accessible via Garner Ferry Road. A total of 18 parking lots are located across the campus, along with several areas of additional parking spaces located along roadsides within the campus. Onsite parking areas currently provide approximately 1,400 spaces. Since parking spots are limited at the Dorn VAMC, overflow parking is available along with valet parking and shuttle services.

Public transportation is available from the Columbia Area Transit System via the Central Midlands Transit (COMET) bus route 21, which has a stop at the Dorn VAMC along Garners Ferry Road (COMET

2014). The Dorn VAMC is located approximately 2 miles east of the Jim Hamilton LB Owens Airport and approximately 5 miles southeast of the Columbia Amtrack Station.

No Action Alternative

No effects on transportation and parking would be expected under the No Action Alternative. Transportation resources would remain unchanged when compared to existing conditions.

Proposed Action

Short-term negligible to minor and long-term negligible to beneficial adverse effects on transportation and parking would be expected. The short-term adverse effects would be primarily from construction vehicles, associated changes in localized traffic patterns, and potential displacement of parking during construction. Long-term beneficial effects would result from the additional 240 parking spots in the proposed expansion of Parking Lot 12. No permanent personnel would be required during operations. Additionally, no roadway improvements would be required to support the Proposed Action.

During construction, the number of available parking spots could be reduced at the Dorn VAMC due to construction of the canopy arrays in Parking Lot 3 and Parking Lot 18B, as well as possible placement of construction equipment during installation of the rooftop PV systems. However, the Dorn VAMC is considering constructing the Parking Lot 12 expansion first, prior to the other PV projects on campus. This schedule would mitigate the impacts of reduced parking by adding an additional 240 parking spots.

If final project design determines that such scheduling is not feasible, then parts of parking lots would be temporarily closed during construction, which would limit parking and displace patients and visitors, resulting in minor impacts. Phased construction methods, such that construction would occur at only one parking lot area at a time, would reduce potential impacts to traffic and parking during construction. Given the short-term nature of the proposed construction activities (i.e., less than 1 year from start of finish) and with incorporation of standard BMPs during construction (e.g., scheduling construction deliveries during off-peak parking hours, minimizing use of parking spaces for staging areas, and limiting storage of construction materials to the designated staging area), the Proposed Action would have minor impacts to parking.

Traffic would increase temporarily due to the influx of construction vehicles and privately-owned construction-worker vehicles. Increased construction traffic volume would result from the estimated average of 20 additional construction personnel and approximately five truck trips per week. There may also be traffic delays near construction sites. These effects would be temporary in nature, confined primarily to the Dorn VAMC campus, and would end at the conclusion of the construction phase. The local roadway infrastructure would be sufficient to support construction activities. All construction vehicles would be equipped with backing alarms, two-way radios, and Slow Moving Vehicle signs when appropriate. Although these effects would be minor, contractors would route and schedule construction vehicles to minimize conflicts with other traffic and strategically locate staging areas to minimize these already limited effects.

Implementation of the Proposed Action would result in the addition of parking spaces associated with the expansion of Parking Lot 12 and would not require permanent removal of any of the facility's parking spaces. Furthermore, the Proposed Action would not permanently alter the existing campus roadway network. No long-term impacts are anticipated for public transit, rail, bus, or air traffic in the area and no new permanent employees would be required for operations; therefore no long-term adverse impacts to onsite transportation would result. Permanent, long-term beneficial impacts would result from the additional parking at the Parking Lot 12 expansion area.

3.3.7 Utilities

SCE&G provides electricity and natural gas to the Dorn VAMC. SCE&G generates, transmits, distributes, and sells electricity to approximately 668,000 retail and wholesale customers throughout the state. Additionally, SCE&G serves approximately 319,000 natural gas customers in South Carolina. The city of Columbia provides water and sewer services to the Dorn VAMC.

The facility on-peak electrical demand ranges from 3,022 kilowatts (kW) to 4,438 kW based on utility data from FY 2012. The monthly electric usage of the VAMC reached a maximum of 2,496 MWh in July 2012 and a minimum of 1,455 MWh in February 2012. The average monthly electric usage during FY 2012 was 1,841 MWh. Annual electric consumption was approximately 22 million kWh at an average rate of $0.0892 per kWh (Antares 2013).

The Dorn VAMC uses natural gas primarily for the production of steam, which is distributed through the campus for space heating, reheat, cooking, sterilization, and humidification. The central heating plant has four natural gas fired boilers and one summer boiler. Three boilers are 15,000 pounds per hour (lb/hr) steam in capacity, while the fourth is a Cleaver Brooks 20,000 lb/hr boiler. Fuel oil is used as the backup source of fuel for the four boilers. The summer boiler is a Johnston boiler rated at 13,800 lb/hr. Future construction plans include the expansion of the current boiler house to house a new boiler system. The new boiler system for the campus would include two new 17,250 lb/hour boilers and one relocated 15,000 lb/hr boiler. The existing summer boiler would remain in operation. The average monthly natural gas usage during FY 2012 was 7,609 million British thermal units (MMBtu) while the annual usage totaled 91,305 MMBtu (Antares 2013).

The Dorn VAMC has eight emergency generators. The generators provide limited backup power to critical building services in the event of a loss of power from the electrical grid. The generators are primarily fueled by diesel, which is stored in ASTs.

No Action Alternative

Under the No Action Alternative, the PV arrays would not be installed, and no utility impacts would occur. The Dorn VAMC would continue to entirely rely on electricity provided by SCE&G and would not produce the positive utilities effects of installing an onsite renewable energy source, as described below. This alternative would have no impact to existing suppliers of electric power in Columbia.

Proposed Action

The Proposed Action would result in a long-term beneficial impact on local utilities by decreasing the Dorn VAMC's reliance on the existing electrical grid. The proposed construction and operation of PV arrays at the Dorn VAMC would not alter the current use of the facility. No increase in demand on any utility would result from the installation of the array; however, the Proposed Action would provide supplemental electrical generation, thereby reducing electric demand from the electric provider, SCE&G. No changes in water usage or natural gas supply are anticipated with the installation and operation of the PV arrays.

During connection of the PV arrays with the onsite electrical infrastructure, a very short-term (i.e., less than 24 hours) onsite outage could occur; however, this would not affect areas outside of the Dorn VAMC and would be carefully coordinated by the VA to ensure a minimal disruption, if any. The PV arrays would supplement the purchased electrical supply from SCE&G. The PV arrays would be used as a direct feed rather than for backup power in storage systems such as batteries. It is assumed that each PV system would be connected to the nearest available point of connection, such as the building's main electrical switchgear or distribution panel. No upgrades are anticipated to the existing

breakers and busbars since they have sufficient capacity and amp ratings. All electricity produced from the PVs would be used onsite, and none would be fed back to the main utility grid. The PV arrays would provide a combined electrical output of approximately 2,800,500 kWh during the first year (Antares 2013). Based on FY 2012 consumption rates, this would meet more than 10 percent of the Dorn VAMC's electricity use. This would represent a long-term beneficial impact on local utility infrastructure and would reduce the Dorn VAMC's demand on SCE&G. Additionally, this would help the Dorn VAMC meet the energy mandates from the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and EOs 13423 and 13514; which set energy reduction and renewable energy requirements for federal agencies.

The Proposed Action would not cause substantial population growth in the city of Columbia or otherwise increase utility demands as a result; therefore, the Proposed Action would have a net positive impact on the electrical demand of the city and SCE&G.

3.3.8 Wetlands and Floodplains

Wetlands

Freshwater wetlands (referred to as "waters of the U.S.") are subject to federal jurisdiction and permitting under Section 404 of the Clean Water Act and include all navigable waterways, their tributaries, as well as wetlands contiguous (connected) to and adjacent to those navigable waterways and tributaries. Isolated wetlands (those that have no physical, chemical, or biological connection to waters of the U.S.) are not regulated under federal jurisdiction unless they are adjacent to waters of the U.S.

The USFWS is the principal federal agency that provides information to the public regarding the extent and status of wetlands located throughout the U.S., which is referred to as the National Wetland Inventory (NWI). The USFWS has developed a series of maps depicting the known locations of wetlands and deepwater habitats. No NWI-mapped wetlands or surface waterbodies currently exist onsite. Likewise, no areas of suspected wetlands were observed onsite during the site visit.

Floodplains

The Federal Emergency Management Agency (FEMA), through the National Flood Insurance Program, is responsible for mapping areas of the U.S. which are prone to flooding potential. Flooding potential is generally described in terms of flooding recurrence intervals, such as the 100-year or 500-year flood. The 100-year floodplain is the area projected to be inundated by a storm that has a 1 percent probability of occurring in any year. The 500-year floodplain is the area projected to be inundated by a storm with a 0.2 percent probability of occurring in any year. The 100-year floodplain is the national standard on which floodplain management and the National Flood Insurance Program are based.

EO 11988, *Floodplain Management*, requires federal agencies to avoid, to the extent possible, long-term and short-term impacts on floodplains that may result from their actions. This EO outlines the procedure that federal agencies must follow when proposing development within a floodplain. The purpose of the EO is to have each federal agency "take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities".

EO 11988 allows development within a floodplain when certain criteria are met, but seeks to avoid floodplain development when it is possible, within the existing constraints of a project, to locate the project elsewhere. If it is reasonably possible to carry out the proposed development action outside of the floodplain, this is referred to as a practical alternative. For situations in which there is no practical

alternative outside of the 100-year (or "base") floodplain, the VA has followed a series of steps, developed by FEMA, in order to comply with the EO. These steps are summarized in VA's Environmental Compliance Manual (VA 1998) as follows:

Step 1: Determine if a Proposed Action is in a base floodplain.

Step 2: Upon full analysis of floodplains or wetlands, prepare a "Notice of Proposed Action" for publishing (i.e., concurrent with the publication of the Draft EA).

Step 3: Identify and evaluate practicable alternatives to affecting the floodplain or wetland.

Step 4: Determine how the action would be designed or modified to minimize impacts to the floodplain or wetland and to the action.

Step 5: Determine whether the action conforms to applicable state or local floodplain or wetland regulations.

Step 6: Determine and describe why the National Flood Insurance Program Criteria are not appropriate for the action if they do not apply.

Step 7: Prepare and publish a "Notice of Planned Action." This notice serves as the Statement of Finding in compliance with Section 2(a) of the EO (i.e., the Draft EA and attached FONSI fulfill this requirement).

Step 8: Implement the action.

These eight steps have been followed during the VA's site selection process, as evidenced in this EA, as well as by providing for public review through the request for comments.

According to digital FEMA flood mapping data, two small floodplain areas (see Figure 5) exist within the Dorn VAMC campus boundaries, equaling approximately 1.1 acres of floodplain on the property (FEMA 2013). One approximate 0.7-acre floodplain area is located directly in back of the main hospital Building 100, on its southwest side. The other 1.09-acre area is located in the far northeast corner of the property, with 0.41 acre of that area located within the Dorn VAMC campus boundaries.

No Action Alternative

Under the No Action Alternative, the VA would not construct the proposed PV systems at the Dorn VAMC, no construction would potentially take place within the floodplain, and no effects to water resources would occur.

Proposed Action

As indicated above, approximately 0.70 acre of mapped 100-year floodplain is located immediately adjacent to Building 100 (southwest side), one of the proposed locations for a rooftop PV array. This area currently consists of a paved loading dock area, while a landscaped grass and soil area is located slightly further to the southwest of the loading dock, outside of the floodplain.

It is likely that the areas adjacent to Building 100 would be used as construction staging areas during the installation of PV arrays at Building 100. The temporary presence of construction equipment in floodplains could cause a minor temporary direct impact. By placing construction materials within the floodplain, flood flows could be impeded if a flooding event occurred during construction. This impact would be minimal, and it is not expected that this impact would reach a level of endangering human health or property or conflict with any state, local, or federal floodplain ordinances.

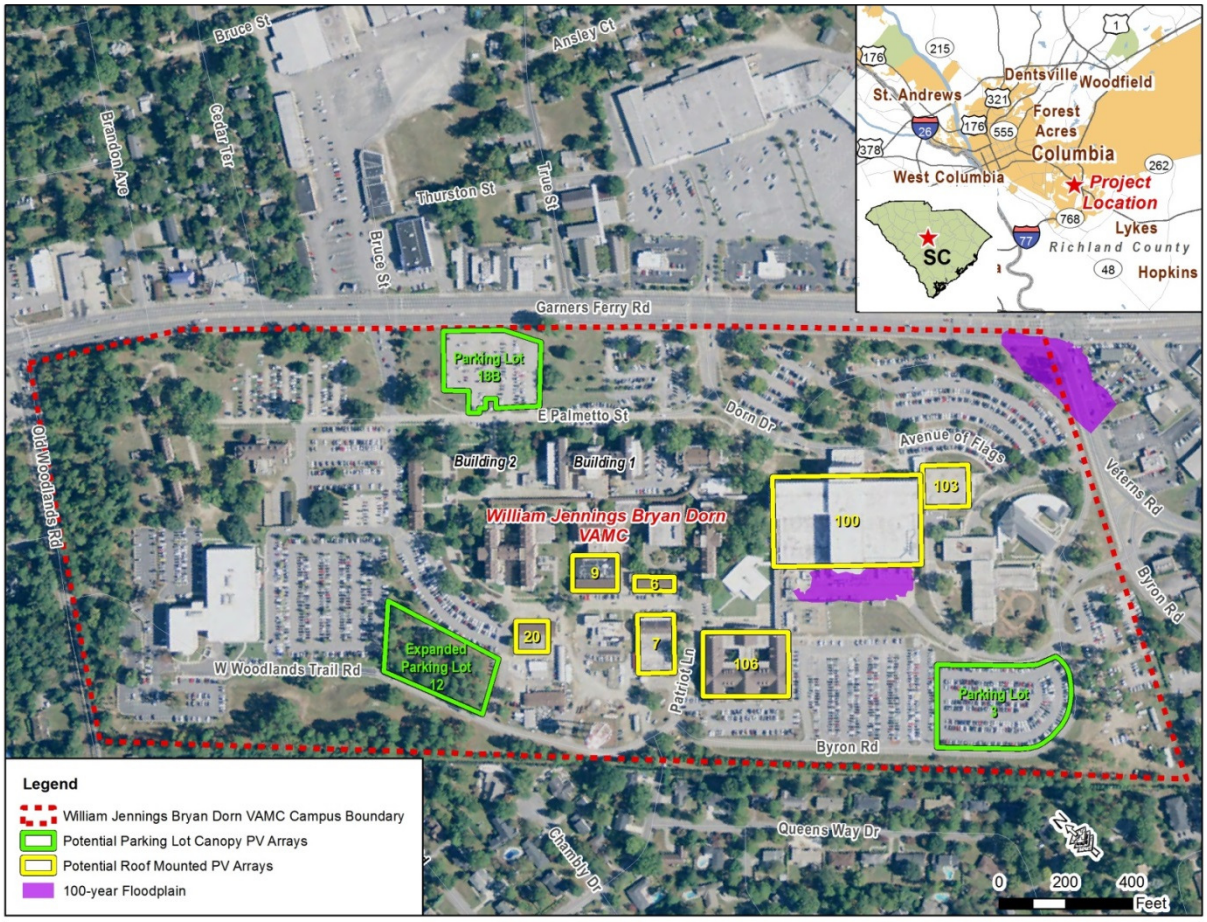

Figure 5. Areas of the Dorn VAMC Located Within the 100-Year Floodplain

During construction activities, the construction contractor should, to the extent possible, stage vehicles and equipment outside the floodplain. At a minimum, vehicles and equipment should not be left in floodplain areas when they are not in use and during overnight hours, weekends, and other periods of inactivity.

3.4 Mitigation Measures

The USFWS and SHPO were consulted regarding impacts to fish and wildlife species and cultural resources; however, responses have not been received as of the date of this EA. Although the EA concludes that no effects to species or habitat or cultural resources are expected from the Proposed Action, if the USFWS or SHPO determine the Proposed Action may have an adverse effect, the VA would initiate formal consultation to mitigate these effects. The VA will complete consultation with USFWS and SHPO prior to construction of the Proposed Action.

3.5 Cumulative Effects

Cumulative effects, as defined by the CEQ, are, "Impacts on the environment, which result from the incremental impact of the action when added to other past, present and reasonable foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such action" (40 CFR 1508.7). Thus, cumulative impacts are the sum of all direct and indirect impacts, both adverse and positive, that result from the Proposed Action when combined with past, present, and future actions regardless of the source. Cumulative impacts may be accrued over time and/or in conjunction with other pre-existing effects from other activities in the area (40 CFR 1508.25); therefore, pre-existing impacts and multiple smaller impacts should also be considered.

Ongoing current projects and proposed future projects at the Dorn VAMC may occur concurrently with construction of the Proposed Action. The Dorn VAMC is anticipating the following projects to occur within the campus within the near future:

- Construction of a new boiler plant with additional parking, to be located next to the existing water tower. This has gone out for bid and is anticipated to start construction in 2014.
- Construction of new building for a clinical addition.
- Construction of a new police station.

While changes in development of this area are anticipated and this ongoing development would continue to place pressures on area infrastructure as well as impact the natural environment, the Proposed Action would not contribute to cumulative impacts in this area. Due to the nature of the Proposed Action, pressures on area utility infrastructure would be decreased, as well as a consequent reduction in area air emissions (i.e., from electricity production). In addition, careful planning, monitoring, and communication between involved area agencies would ensure growth in the area is managed and cumulative adverse impacts are avoided.

The Proposed Action would result in the impacts identified throughout Section 3.0. These impacts are generally site-specific and would not contribute to cumulative adverse effects in the area or region. As a responsibility of the VA, future development and operation of the Dorn VAMC, including onsite utilities and construction, would be coordinated to ensure no conflicts occur.

Therefore, implementation of the Proposed Action is not expected to have cumulative significant adverse impacts to any technical area discussed in this EA. Through implementing the BMPs identified in this EA, the VA would control and further reduce identified impacts.

Under the No Action Alternative as described throughout Section 3.0, no adverse impacts would occur. However, the Dorn VAMC would continue to rely on power provided by SCE&G. By not implementing the Proposed Action, ongoing levels of air emissions from electricity generation would continue. A reduction in this traditional power usage, or demand on the current electrical grid, would not occur.

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SECTION 4: REFERENCES

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APPENDIX A

CONSULTATION DOCUMENTS

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DEPARTMENT OF VETERANS AFFAIRS
Dorn Medical Center
6439 Garners Ferry Road
Columbia, South Carolina 29209

In Reply Refer To: 544/138A

March 14, 2014

Mr. John Sylvest
Review and Compliance Coordinator
SC Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905

RE: William Jennings Bryan Dorn Veterans Affairs Medical Center, Columbia, South Carolina – Section 106 Project Review Form for Proposed Solar Photovoltaic System

Dear Mr. Sylvest:

The U.S. Department of Veterans Affairs (VA), in partnership with the VA National Energy Business Center, is considering a project that involves the construction and operation of a solar photovoltaic (PV) system at the William Jennings Bryan (WJB) Dorn Veterans Affairs Medical Center (VAMC) located at 6439 Garners Ferry Road, Columbia, South Carolina 29209. The purpose of this letter is to initiate consultation with the South Carolina State Historic Preservation Office and to request concurrence with our determination of No Adverse Effect to historic properties for the project. Please see the Section 106 Project Review Form in Attachment A; and Maps and Photographs of the proposed project locations in Attachments B and C, respectively.

The solar photovoltaic system project (i.e., the Proposed Action) would involve the installation and operation of solar photovoltaic arrays on any or all of the following options:

Rooftop Arrays:
- Building 100, the main hospital (large individual wings on flat roof)
- Buildings 103, 106, 6, 7, 9, and 20 (smaller buildings)

Parking Lot Canopy Arrays:
- Parking Lot 3
- Parking Lot 18B
- Parking Lot 12 expansion area

The proposed project would involve the construction of the proposed approximately 1.5-acre expansion area for parking lot 12. This proposed expansion area is currently covered with grass and trees. For this option under the Proposed Action, construction would require the removal of approximately 40 trees. This area would be paved to create the parking spaces, and covered with a PV canopy array. All other proposed PV locations in this Proposed Action would be either on existing rooftops or within the boundaries of existing paved or gravel parking lots.

As this proposed action is Federally funded, we are preparing an Environmental Assessment (EA) that will evaluate the potential physical, environmental, cultural, and socioeconomic effects associated with the Proposed Action, pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (32 U.S. Code [USC] §4321, *et seq.*); the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); 38 CFR Part 26 (*Environmental Effects of the Department of Veterans Affairs' Actions*); as well as the VA *NEPA Interim Guidance for Projects* (2010).

We have made a determination of No Adverse Effect to historic properties from the proposed action and seek your concurrence with the finding of No Adverse Effect. Please see the supporting information, maps, and photographs in the Attachments A, B, and C.

We respectfully ask that you respond in writing to this request within 30 days to enable us to complete this phase of the project within the scheduled timeframe. Your response will become part of our written record and included within the associated NEPA documentation. Please send your written response to the following address:

Stan Domann
Chief, Engineering Service
Wm. Jennings Bryan Dorn VAMC
6439 Garners Ferry Road
Columbia, SC 29209

If you have any concerns or require additional information, please call or email Mr. Domann at 803-695-6770 or by email at stan.domann@va.gov. Additionally, project information is available from Potomac-Hudson Engineering, Inc., the contractor responsible for preparing the EA. The Project Manager, Andrea Wilkes, can be contacted at (301) 907-9078 ext. 3080 and via email at andrea.wilkes@phe.com.

Sincerely,

Stan Domann

Stan Domann, CHFM
Chief, Engineering Service (138A)
Wm. Jennings Bryan Dorn VAMC
6439 Garners Ferry Road
Columbia, SC 29209
Telephone: (803) 695-6770

Attachment A. Section 106 Project Review Form
Attachment B. Maps
Attachment C. Site Photographs

Attachment A

Section 106 Project Review Form

Columbia VAMC, South Carolina

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South Carolina Department of Archives & History
State Historic Preservation Office
SECTION 106 PROJECT REVIEW FORM

Section 106 of the National Historic Preservation Act requires the South Carolina State Historic Preservation Office (SHPO) to review all projects that federally funded, licensed, or assisted. The SHPO is only one consulting party under Section 106. Refer to 36 CFR 800.2 for information about other participants who are entitled to comment on the Section 106 process, including Native American tribes, interested parties, and the public. Consultation with the SHPO is NOT a substitution for consultation with appropriate Native American tribes.

HELPFUL TIPS:

- Please consult the FAQs at the end of this document. Visit our website for more information on the Section 106 Process and for a list of Staff Project Review Contacts http://shpo.sc.gov/programs/revcomp/Pages/default.aspx.
- When planning to submit a project for review, please remember that our office has 30 days to review federal projects and 45 days to review due diligence projects. Due to the volume of phone calls and e-mails we receive, we are unable answer inquiries regarding a project's status until 30 days has elapsed.
- Please **DO NOT** send project review forms by e-mail or fax; we recommend that you use certified mail , FedEx, or UPS to determine if your project has been delivered. Due to the volume of phone calls and e-mails we receive, we are unable to confirm if your project has been received.
- Please send this completed form along with supporting documentation (maps, photographs, plans, survey results, etc.) to: SC Department of Archives & History, Attn: Review & Compliance, 8301 Parklane Road, Columbia, SC 29223. You must include all of the supporting documentation in your package. If we do not receive the requested documentation, we are unable to review your project until these materials are received.

STATUS OF PROJECT (check one)

- [x] FEDERAL UNDERTAKING ANTICIPATED (You are applying for Federal assistance)
- [ ] FEDERAL UNDERTAKING ESTABLISHED (You have received Federal assistance)
- [ ] DUE DILIGENCE PROJECT (You are anticipating Federal assistance)
- [ ] ADDITIONAL INFORMATION FOR PREVIOUS SUBMISSION (SHPO #:)

GENERAL INFORMATION

1. Project Name: Solar Photovoltaic (PV) System at the Wm. Jennings Bryan Dorn VA Medical Center,
2. City: Columbia, SC 3. County Richland

4. Federal Agency (providing funding, license, permit, or assistance):
   Agency Contact Name: William Jennings Bryan Dorn Hospital
   Address: 6439 Garners Ferry Road, Columbia, SC 29209
   Phone: 803-776-4000 ext 1-4293 E-mail: thin.phu2@2va.gov

5. Federal Agency Authorized Applicant: William Jennings Bryan Dorn Hospital
   Applicant Contact Name: Sandra-Thin Phu
   Address: 6439 Garners Ferry Road, Columbia, SC 29209
   Phone: 803-776-4000 ext 1-4293 E-mail: thin.phu2@2va.gov

6. Consultant for the Applicant or Agency: Potomac-Hudson Engineering
   Consultant Contact Name: Andrea M. Wilkes
   Address: One Washingtonian Center 9801 Washingtonian Boulevard, Suite 350 Gaithersburg, Maryland 20878
   Phone: 301.907.9078 x 3080 E-mail: andrea.wilkes@phe.com

INFORMATION REQUIRED FOR NEW PROJECTS

NOTE: If the project involves the rehabilitation of a building eligible for or listed in the National Register of Historic Places, **complete and submit the Historic Building Supplement** in addition to this form.

DETERMINING THE PROJECT AREA OF EFFECT (APE)

1. Describe **in detail** all aspects of the project. Include a detailed description of any proposed ground disturbance and any proposed building rehabilitation or repairs.

The solar photovoltaic system project would involve the installation and operation of solar photovoltaic arrays on any or all of the following options including buildings 100, 103, 106, 6, 7, 9, and 20. Building 6 is a contributing resource to the historic district. All other buildings are non-contributing. Buildings 6, 7, 9 and 20 are within the historic district boundaries. Buildings 100, 103 and 106 are outside the boundaries.

Also proposed are Parking Lot Canopy Arrays within parking lot 3, parking lot 18b and the parking lot #12 expansion area. Ground disturbance for the Parking Lot Canopy Arrays will be limited to the installation of concrete piers and accompanying conduit runs. Canopies on will be placed on existing paved areas for lots 3 and 18b. Parking lot expansion 12 will include construction in an area which is presently grass and trees. The proposed installation areas are depicted on the attached facility map.

2. Will this project involve phases of construction? If so, please describe the work to be conducted under each phase.

No phased construction.

3. How many acres are in the project area? For building rehabilitation projects, list the building's square footage.

Installation of PV arrays for buildings are limited to the rooftops of the selected structures. The total ground disturbance for piers and conduit runs within the parking areas will be less than 800 square feet.

4. Describe the current land use within and immediately adjacent to the project area (e.g. farmland, forest, developed, etc.).

The campus is a mix of educational buildings (MUSC) and hospital buildings (VA).

5. Describe prior land use or previous modification within and immediately adjacent to the project area (e.g. grading, plowing, mining, draining, etc.).

None in recent past. Solar arrays will be considered for rooftops of buildings 100, 103, 106, 6, 7, 9 and 20. Parking lot canopy arrays will be considered for Lot 3, Lot 12 expansion and Lot 18b.

6. Will the project involve (check all that apply):
   - [x] new construction
   - [ ] rehabilitation of any structures
   - [ ] relocation of any structures
   - [ ] demolition of any structures

7. Provide a written description of the Area of Potential Effect (APE). The APE is the geographic area or areas within which a project/undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist.

For ground disturbance, the APE will be limited to concrete piers to support the PV canopies and trenching for conduit runs. No ground disturbance is anticipated for the rooftop installations. The APE for structures is anticipated to be no more than 500 feet beyond the limits of each PV array.

IDENTIFICATION OF HISTORIC PROPERTIES

A historic property can be defined as any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places.

1. **ATTACH** a copy of the pertinent ArchSite GIS map to this submission. Please see http://archsite.cas.sc.edu/archsite for information on registering for and using the database.
2. **ATTACH** a copy of a map and clearly mark the project site. If your project involves ground disturbance, a USGS topographic map is **required**. You can obtain topographic maps from http://www.mytopo.com/ or http://nationalmap.gov/ustopo/.
3. **ATTACH** ***original*** photographs of the project area. **Be sure to include any structures within and immediately adjacent to the project area.**
4. **ATTACH** a site plan or sketch of the project area (existing and proposed).

5. List all historical societies, local governments, members of the public, Indian tribes, and any other sources consulted in addition to the SHPO to identify known and potential historic properties and note any comments received.

None

6. Are there any structures in the project area? (houses, barns, old garages, sheds, commercial buildings, churches, etc.) ✔ YES ☐ NO 1932-2000 Approximate age?

7. Does the landowner know of any archaeological resources? ☐ YES ✔ NO
   If yes, please describe:

8. Has a cultural resources assessment or a historic resources survey been conducted in the area?
   ✔ YES ☐ NO ☐ DO NOT KNOW

9. Based on the information contained in questions 1 – 8, please check one:
   ✔ **Historic Properties are present in the APE**
   ☐ **Historic Properties are not present in the APE**

ASSESSMENT OF PROJECT EFFECT

PLEASE CHOOSE ONE DETERMINATION:

- ☐ **No historic properties affected**
- ✔ **No adverse effect on historic properties**
- ☐ **Adverse effect on historic properties**
- ☐ **Due Diligence Project (Does not apply)**

Please explain the basis for your determination:

The William Jennings Bryan Dorn Veterans Affairs Medical Center in Columbia, SC was listed in the National Register on September 2, 2009. The historic district consists of 20 contributing and seven non-contributing resources. The photovoltaic systems planned for rooftop installations will be placed upon non-contributing buildings in and outside of the historic district. Only one contributing resource: Building 6, is being considered for PV array systems. The installations on buildings 100, 103 and 106 are located at a minimum of 100 feet (building 100) or more from the historic district boundary. Buildings 7, 9 and 20 are non-contributing buildings located within the historic district and south of the main body of historic structures in the maintenance and utility area of the campus. Building 6 is also located in this area. The proposed PV systems within the historic district will be largely installed on flat roof sections and sloped sections that face away from the main body of historic buildings. Installation on Building 6 will be installed on the southwest roof slope, facing away from the main body of historic structures.

The parking lot installation on lot 3 is located outside of the APE. Parking lot installation on the lot 12 extension will be sufficiently distanced from the district and will not be a significant impact to the historic district. The parking lot installation for lot 18b will be located north of buildings 1 and 2 and will have the greatest potential for visual impacts. However, none of the installations will significantly impact those features that make the district eligible for the National Register.

Soil disturbance for parking lot installations at lot 3 and lot 18b will be limited to concrete piers and trenching for conduit and will not represent major soil disturbance. Soil disturbance for the lot 12 extension will be limited to the removal of trees and minor grading as well as the installation of concrete piers and trenching.

SECTION 106 FREQUENTLY ASKED QUESTIONS (FAQs)

1. What is Section 106 of the National Historic Preservation Act (NHPA)?

Section 106 of NHPA requires each Federal agency to identify and assess the effects of its actions on historic properties. The responsible Federal agency must consult with appropriate State and local officials, Indian tribes, applicants for Federal assistance, and members of the public and consider their views and concerns about historic preservation issues when making final project decisions. The regulations that implement Section 106 are 36 CFR 800, available online at http://www.achp.gov/regs-rev04.pdf.

2. What is the Area of Potential Effect (APE)?

As defined in 36 CFR 800.16(d), the APE is the geographic area or areas within which a project/undertaking may 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 project/undertaking and may be different for different kind of projects/ undertakings. **Every project/undertaking has an APE, which must be defined.**

3. What are historic properties?

Historic properties are those properties that are eligible for inclusion in or listed in the National Register of Historic Places. In order to be eligible, a property must be at least 50 years old and meet one of the following criteria: associated with events that have made a significant contribution to the broad patterns of history; associated with the lives of significant persons in our past; embodies distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or that have yielded, or may be likely to yield, information important in prehistory or history.

4. Where can I find information on historic properties?

ArchSite http://archsite.cas.sc.edu/archsite is an online GIS based map that contains all of the *known* historic properties in the State of South Carolina. Please note: even if ArchSite does not list any historic properties in the your APE, that does not mean that there are not any historic properties present. Be particularly sure to notify us of any existing structures in the project area, regardless of age. Please visit our website for more historic property records and research resources http://shpo.sc.gov/research/Pages/default.aspx. You should also consult hard copy records at SHPO, SCIAA (SC Institute of Archaeology and Anthropology), or your local library or historic society.

5. What is an Adverse Effect?

Under Section 106, a project adversely affects a historic property if it alters the characteristics that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property. "Integrity" is the ability of a property to convey its significance, based on its location, design, setting, materials, workmanship, feeling, and association. Adverse effects can be direct or indirect. They include reasonably foreseeable impacts that may occur later in time, be farther removed in distance, or be cumulative. Examples of adverse effects include:

- physical destruction or damage;
- alteration inconsistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (Visit http://www.nps.gov/hps/tps/standguide/);
- relocation of the property;
- change in the character of the property's use or setting;
- introduction of incompatible visual, atmospheric, or audible elements;
- neglect and deterioration;
- transfer, lease, or sale out of federal control without adequate preservation restrictions

6. What happens if construction is already under way when I receive federal funding or permits?

Under Section 110(k) of the National Historic Preservation Act, federal agencies are permitted to withhold grants, licenses, approvals, or other assistance to applicants who intentionally significantly and adversely affect historic properties. This provision, known as the "anticipatory demolition" section, is designed to prevent applicants from destroying historic properties prior to seeking federal assistance in an effort to avoid the Section 106 review process. If you have begun work, please stop and notify the Federal agency.

7. Should I consult with the Tribal Historic Preservation Officer (THPO)?

Yes. Consulting with the SHPO is not the same as consulting with the Tribes. You must consult with the Tribes as a part of the Section 106 process. For more information, please visit: http://www.achp.gov/regs-tribes.html.

8. Where can I find more information?

Please visit our website for more FAQs and information on the Section 106 process: http://shpo.sc.gov/programs/revcomp/Pages/default.aspx.

Attachment B

Maps

Columbia VAMC, South Carolina

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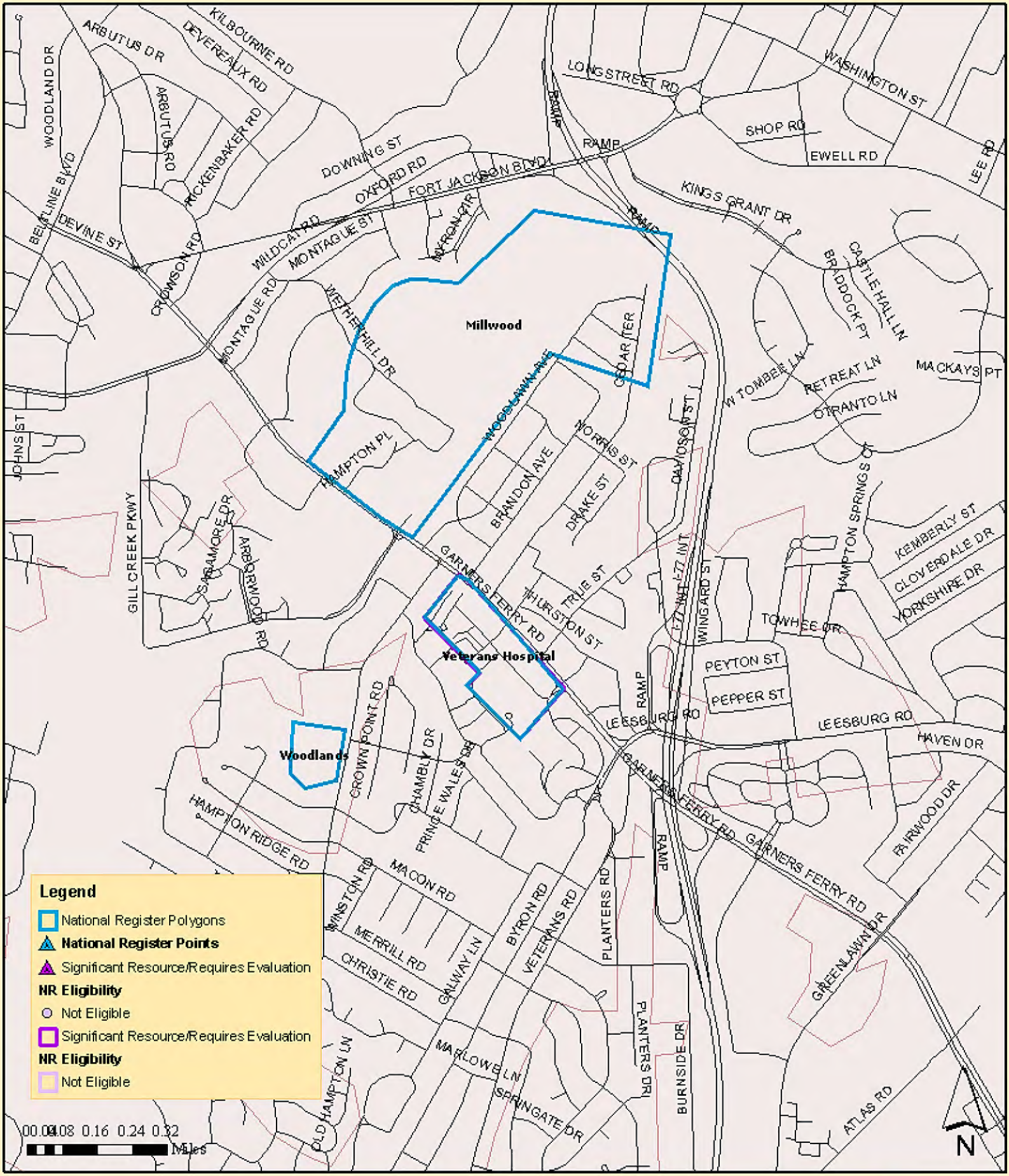
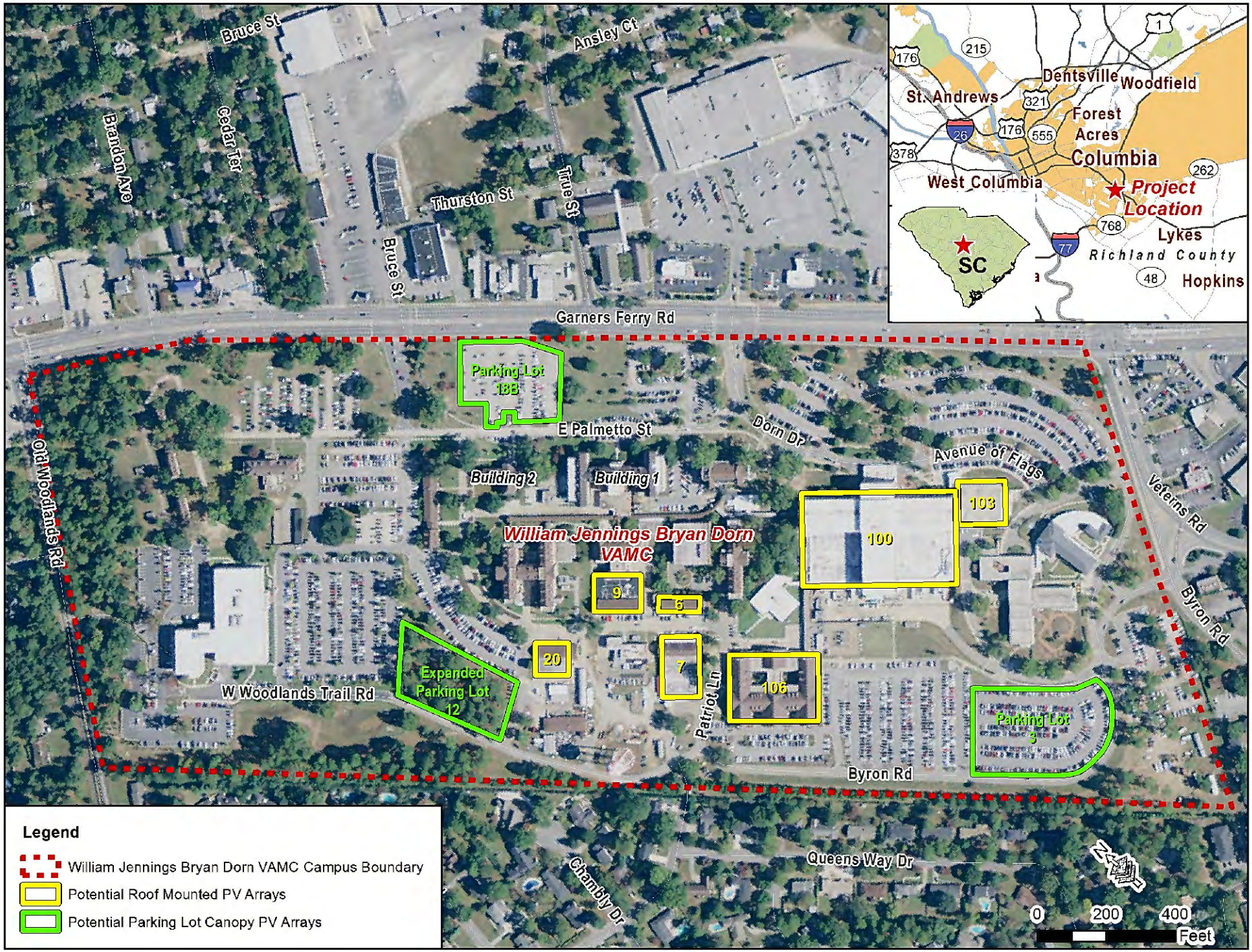
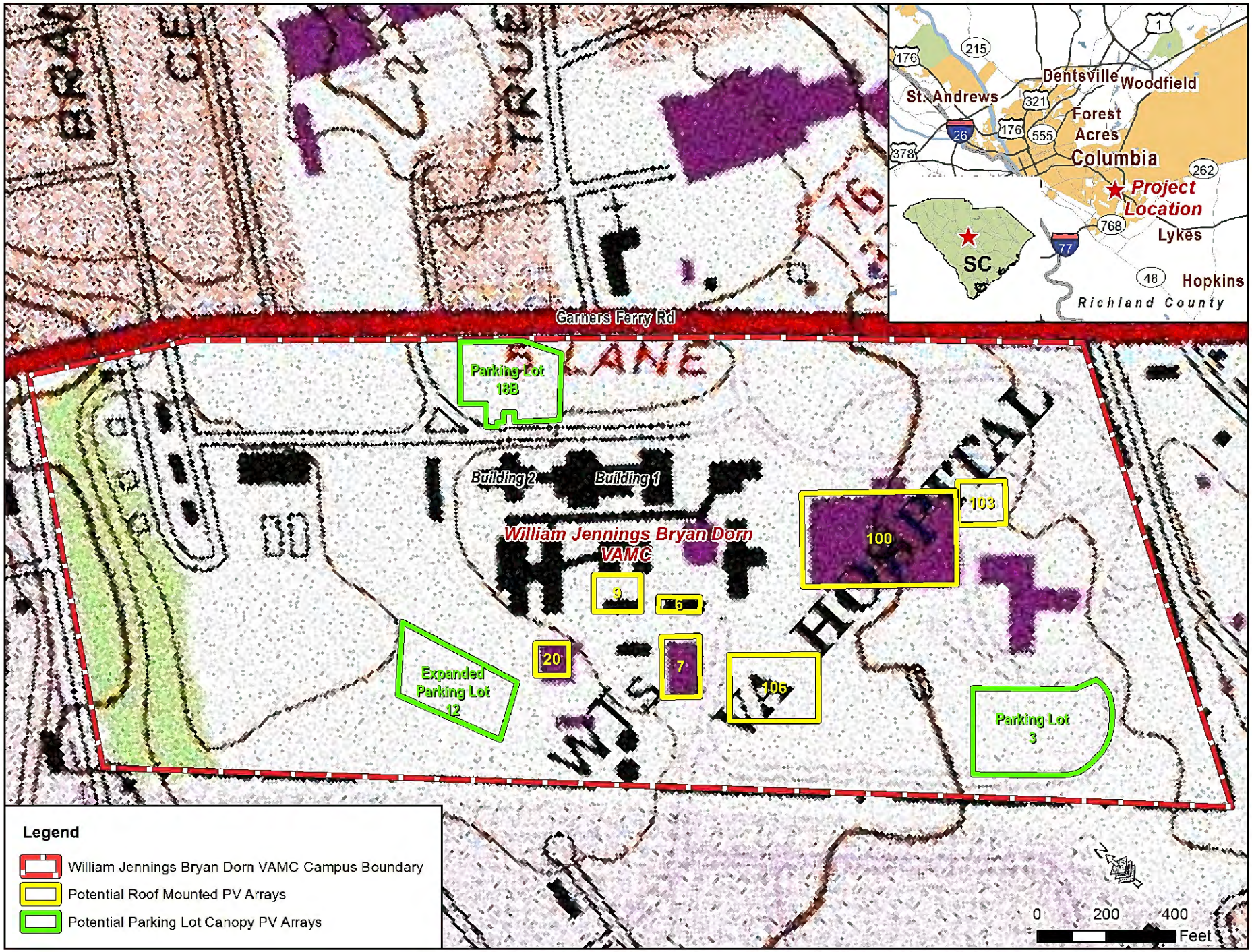


Disclaimer: This map is a product of the University of South Carolina Deparment of Computer Services. The data depicted on this map have been developed through a joint project involving the South Carolina Institute of Archaeology and Anthropology, the South Carolina Department of Archives and History, and the South Carolina Department of Transportation. These parties expressly disclaim responsibility for damages or liability that may arise from the use of this map.

Columbia VAMC



Project Location Map - Columbia, South Carolina



Project Location Map - Columbia, South Carolina
USGS 1:24,000 Quadrangle - Fort Jackson South (33080-H8)

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Attachment C

Site Photographs

Columbia VAMC, South Carolina

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Building 6 (Contributing Resource)

Model of Proposed System on Building 6

Model of Proposed System on Building 7 (Non-Contributing, within NRHD)

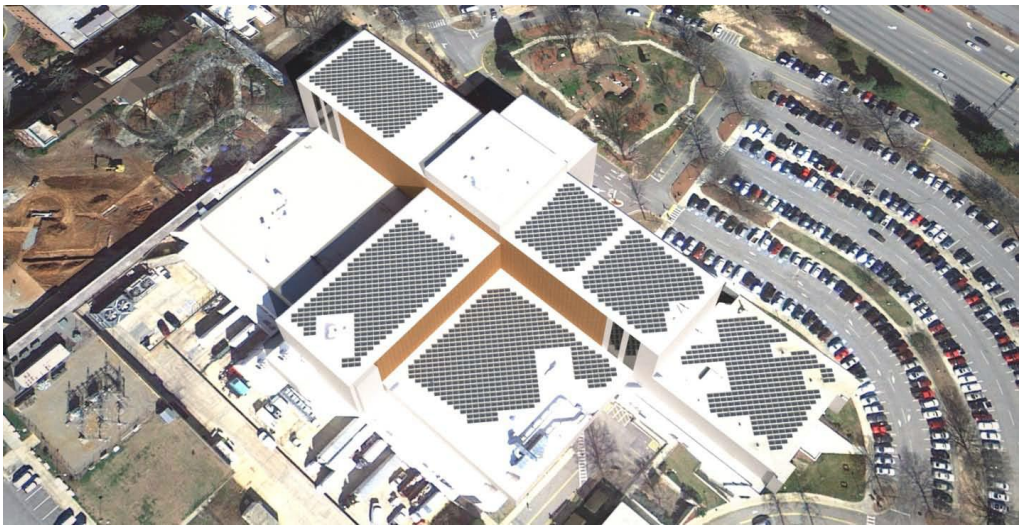
Building 9 (Non-Contributing, within NRHD)

Model of Proposed System on Building 9

Building 20 (Non-Contributing, within NRHD)

Model of Proposed System on Building 20

Building 100 (Non-Contributing, outside NRHD)



Model of Proposed System on Building 100

Building 103 (Non-Contributing, outside NRHD)

Building 106 (Non-Contributing, outside NRHD)

Model of Proposed System on Building 106

Parking Lot 3 (Outside APE)

Parking Lot 12 with extension area in background

Building 1 (Contributing)

View from Building 1 toward Parking Lot 18B in Distance

DEPARTMENT OF VETERANS AFFAIRS
Dorn Medical Center
6439 Garners Ferry Road
Columbia, South Carolina 29209

In Reply Refer To: 544/138A

March 12, 2014

Mr. Tom McCoy
Deputy Field Supervisor
U.S. Fish and Wildlife Service
South Carolina Ecological Services Field Office
176 Croghan Spur Road, Suite 200
Charleston, SC 29407

RE: William Jennings Bryan Dorn Veterans Affairs Medical Center, Columbia, South Carolina -- Environmental Assessment for Proposed Solar Photovoltaic System

Dear Mr. McCoy:

The U.S. Department of Veterans Affairs (VA), in partnership with the VA National Energy Business Center, is considering a project that involves the construction and operation of a solar photovoltaic (PV) system at the William Jennings Bryan (WJB) Dorn Veterans Affairs Medical Center (VAMC) located at 6439 Garners Ferry Road, Columbia, South Carolina 29209. The purpose of this letter is to initiate consultation with the South Carolina Ecological Services Field Office of the U.S. Fish and Wildlife Service and to request information on any Federally-or State-listed threatened, endangered, or candidate species, or critical habitat within the vicinity of the project.

The solar photovoltaic system project (i.e., the Proposed Action) would involve the installation and operation of solar photovoltaic arrays on any or all of the following options as shown in Attachment A:

Rooftop Arrays:
- Building 100, the main hospital (large individual wings on flat roof)
- Buildings 103, 106, 6, 7, 9, and 20 (smaller buildings)

Parking Lot Canopy Arrays:
- Parking Lot 3
- Parking Lot 18B
- Parking Lot 12 expansion area

The proposed project would involve the construction of the proposed approximately 1.5-acre expansion area for parking lot 12. This proposed expansion area is currently covered with grass and trees. For this option under the Proposed Action, construction would require the removal of approximately 40 trees. This area would be paved to create the parking spaces, and covered with a PV canopy array. All other proposed PV locations in this Proposed Action would be either on existing rooftops or within the boundaries of existing paved or gravel parking lots.

As this proposed action is federally funded, we are preparing an Environmental Assessment (EA) that will evaluate the potential physical, environmental, cultural, and socioeconomic effects associated with the Proposed Action, pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (32 U.S. Code [USC] §4321, *et seq.*); the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); 38 CFR Part 26 (*Environmental Effects of the Department of Veterans Affairs' Actions*); as well as the VA *NEPA Interim Guidance for Projects* (2010).
We seek your input into the NEPA process concerning any of the following specific environmental issues or concerns your agency may have on the potentially affected areas, as referenced above and depicted in Attachments A:

- Surface and groundwater resources, including streams, wetlands, floodplains, open water features, wells, and local aquifers.
- Federal- or state-listed threatened or endangered species, any species proposed for such listing, or critical habitat for such species that may occur within a 1-mile radius of the proposed site.
- Parks, nature preserves, conservation areas, designated wild or scenic rivers, migratory bird habitats, or special wildlife issues.
- Natural resource issues.
- Traffic, noise, or socioeconomic concerns.
- Air quality concerns.
- Additional environmental, cultural, land use, or socioeconomic information or concerns your agency may have with regard to the referenced sites.
- Data concerning any present or reasonably foreseeable future actions in the vicinity of the WJB Dorn Columbia VAMC that could contribute to cumulative effects.

Data that you make available will provide valuable and necessary input into the NEPA analytical process. As part of the NEPA process, local citizens, groups, and agencies, among others, will have ample future opportunity to review and comment on the information and alternatives addressed in the EA. A list of other agencies contacted as part of this NEPA process is included in Attachment B.

We respectfully ask that you respond in writing to this request within 30 days to enable us to complete this phase of the project within the scheduled timeframe. Your response will become part of our written record and included within the associated NEPA documentation. Please send your written response to the following address:

Stan Domann
Chief, Engineering Service
Wm. Jennings Bryan Dorn VAMC
6439 Garners Ferry Road
Columbia, SC 29209

If you have any concerns or require additional information, please call or email Mr. Domann at 803-695-6770 or by email at stan.domann@va.gov. Additionally, project information is available from Potomac-Hudson Engineering, Inc., the contractor responsible for preparing the EA. The Project Manager, Andrea Wilkes, can be contacted at (301) 907-9078 ext. 3080, via email at andrea.wilkes@phe.com.

Thank you for your assistance in this matter.

Sincerely,

Stan Domann

Stan Domann, CHFM
Chief, Engineering Service (138A)
Wm. Jennings Bryan Dorn VAMC
Telephone: (803) 695-6770

Attachment A. Maps
Attachment B. List of Agencies Contacted

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Attachment A

Maps

Columbia VAMC, South Carolina

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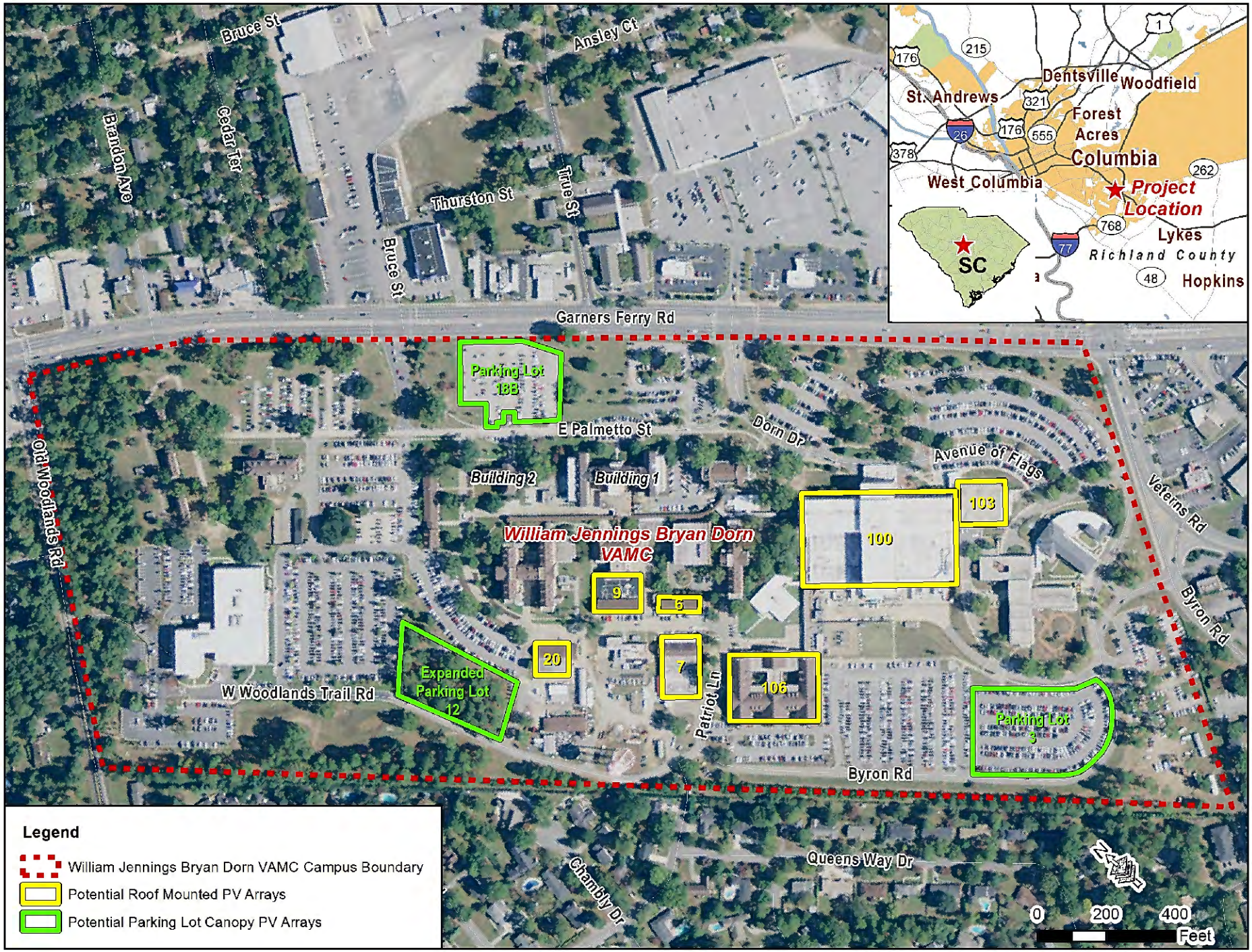
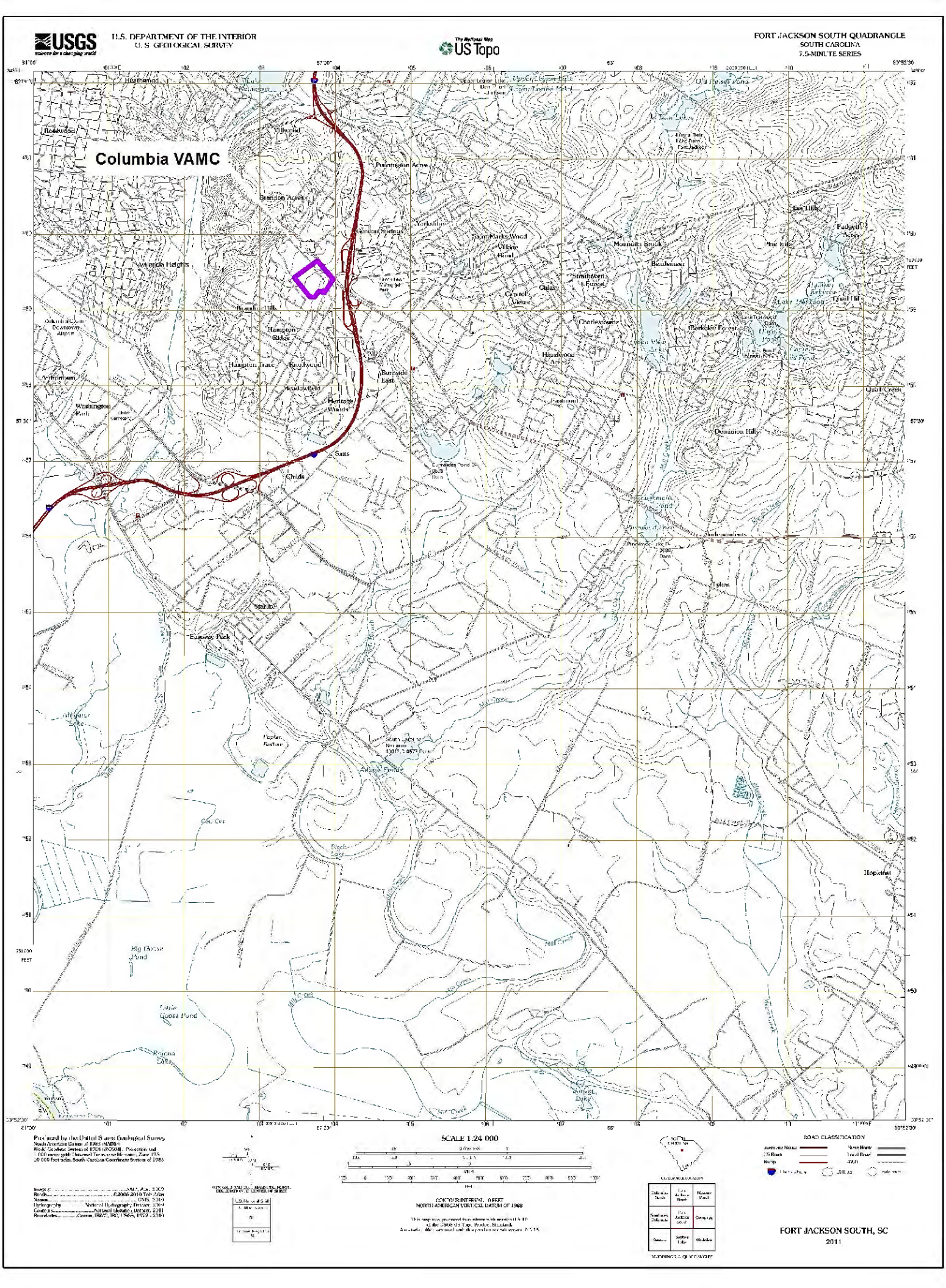


Project Location Map - Columbia, South Carolina


USGS
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
The National Map
US Topo
FORT JACKSON SOUTH QUADRANGLE
SOUTH CAROLINA
7.5-MINUTE SERIES
Columbia VAMC
Hopkins
FORT JACKSON SOUTH, SC
2011

Attachment B

List of Agencies Contacted

Columbia VAMC, South Carolina

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List of Agencies Contacted

U.S. Fish and Wildlife Service
Mr. Tom McCoy
Deputy Field Supervisor
U.S. Fish and Wildlife Service
South Carolina Ecological Services Field Office
176 Croghan Spur Road, Suite 200
Charleston, SC 29407

South Carolina Department of Archives and History
Mr. John Sylvest
Review and Compliance Coordinator
SC Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905

South Carolina Department of Natural Resources
Mr. Alvin Taylor
South Carolina Department of Natural Resources
1000 Assembly Street
Columbia, SC 29201

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DEPARTMENT OF VETERANS AFFAIRS
Dorn Medical Center
6439 Garners Ferry Road
Columbia, South Carolina 29209

In Reply Refer To: 544/138A

March 12, 2014

Mr. Alvin Taylor
South Carolina Department of Natural Resources
1000 Assembly Street
Columbia, SC 29201

RE: William Jennings Bryan Dorn Veterans Affairs Medical Center, Columbia, South Carolina – Environmental Assessment for Proposed Solar Photovoltaic System

Dear Mr. Taylor:

The U.S. Department of Veterans Affairs (VA), in partnership with the VA National Energy Business Center, is considering a project that involves the construction and operation of a solar photovoltaic (PV) system at the William Jennings Bryan (WJB) Dorn Veterans Affairs Medical Center (VAMC) located at 6439 Garners Ferry Road, Columbia, South Carolina 29209. The purpose of this letter is to initiate consultation with the South Carolina Department of Natural Resources in regard to this project.

The solar photovoltaic system project (i.e., the Proposed Action) would involve the installation and operation of solar photovoltaic arrays on any or all of the following options as shown in Attachment A:

Rooftop Arrays:
- Building 100, the main hospital (large individual wings on flat roof)
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Parking Lot Canopy Arrays:
- Parking Lot 3
- Parking Lot 18B
- Parking Lot 12 expansion area

The proposed project would involve the construction of the proposed approximately 1.5 acre expansion area for parking lot 12. This proposed expansion area is currently covered with grass and trees. For this option under the Proposed Action, construction would require the removal of approximately 40 trees. This area would be paved to create the parking spaces, and covered with a PV canopy array. All other proposed PV locations in this Proposed Action would be either on existing rooftops or within the boundaries of existing paved or gravel parking lots.

As this proposed action is federally funded, we are preparing an Environmental Assessment (EA) that will evaluate the potential physical, environmental, cultural, and socioeconomic effects associated with the Proposed Action, pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (32 U.S. Code [USC] §4321, *et seq.*); the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); 38 CFR Part 26 (*Environmental Effects of the Department of Veterans Affairs' Actions*); as well as the VA *NEPA Interim Guidance for Projects* (2010).

We seek your input into the NEPA process concerning any of the following specific environmental issues or concerns your agency may have on the potentially affected areas, as referenced above and depicted in Attachment A:

- Surface and groundwater resources, including streams, wetlands, floodplains, open water features, wells, and local aquifers.
- Federal- or state-listed threatened or endangered species, any species proposed for such listing, or critical habitat for such species that may occur within a 1-mile radius of the proposed site.
- Parks, nature preserves, conservation areas, designated wild or scenic rivers, migratory bird habitats, or special wildlife issues.
- Natural resource issues.
- Traffic, noise, or socioeconomic concerns.
- Air quality concerns.
- Additional environmental, cultural, land use, or socioeconomic information or concerns your agency may have with regard to the referenced sites.
- Data concerning any present or reasonably foreseeable future actions in the vicinity of the WJB Dorn Columbia VAMC that could contribute to cumulative effects.

Data that you make available will provide valuable and necessary input into the NEPA analytical process. As part of the NEPA process, local citizens, groups, and agencies, among others, will have ample future opportunity to review and comment on the information and alternatives addressed in the EA. A list of other agencies contacted as part of this NEPA process is included in Attachment B.

We respectfully ask that you respond in writing to this request within 30 days to enable us to complete this phase of the project within the scheduled timeframe. Your response will become part of our written record and included within the associated NEPA documentation. Please send your written response to the following address:

Stan Domann
Chief, Engineering Service
Wm. Jennings Bryan Dorn VAMC
6439 Garners Ferry Road
Columbia, SC 29209

If you have any concerns or require additional information, please call or email Mr. Domann at 803-695-6770 or by email at stan.domann@va.gov. Additionally, project information is available from Potomac-Hudson Engineering, Inc., the contractor responsible for preparing the EA. The Project Manager, Andrea Wilkes, can be contacted at (301) 907-9078 ext. 3080, via email at andrea.wilkes@phe.com.

Thank you for your assistance in this matter.

Sincerely,

Stan Domann

Stan Domann, CHFM
Chief, Engineering Service (138A)
Wm. Jennings Bryan Dorn VAMC
Telephone: (803) 695-6770

Attachment A. Maps
Attachment B. List of Agencies Contacted

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Attachment A

Maps

Columbia VAMC, South Carolina

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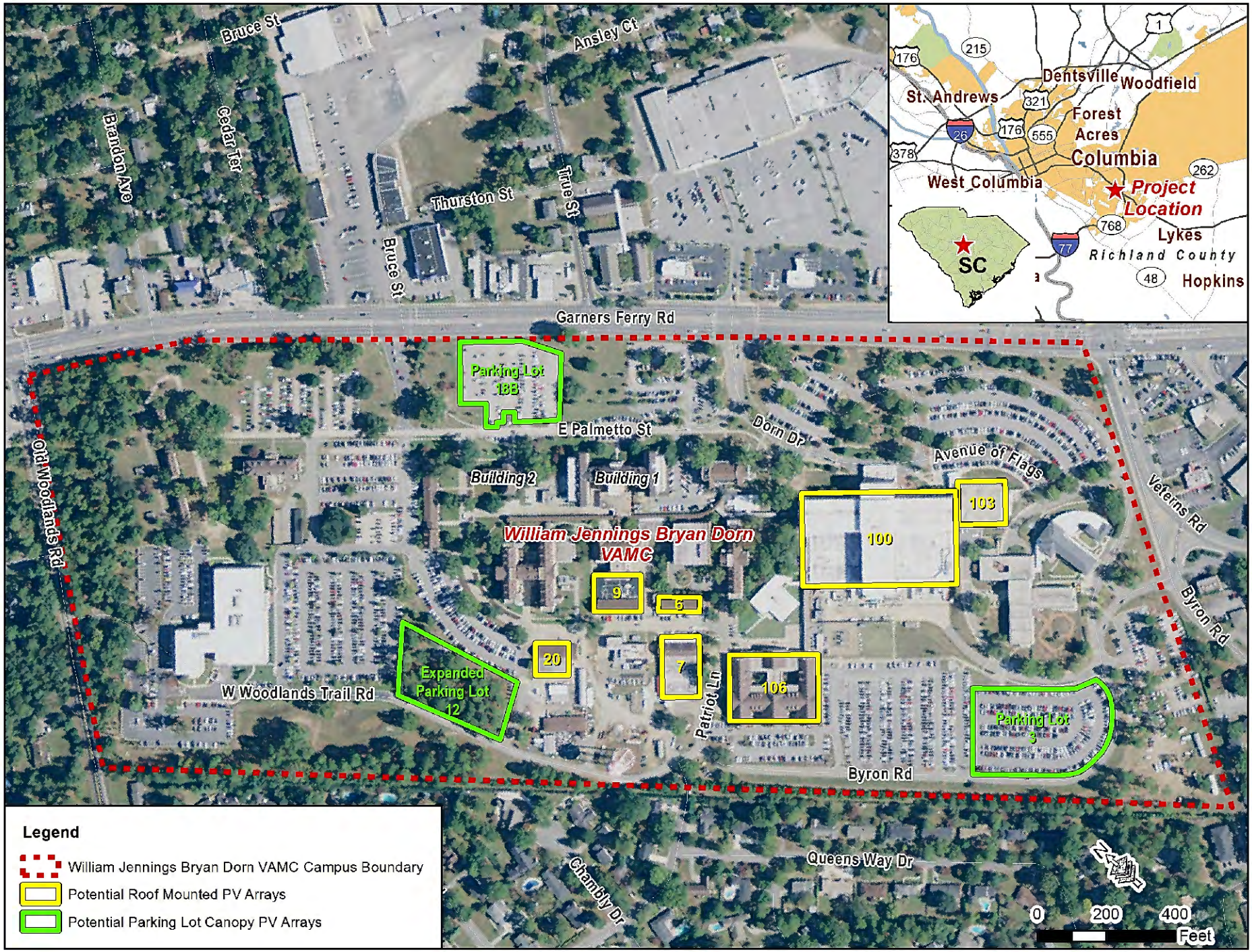
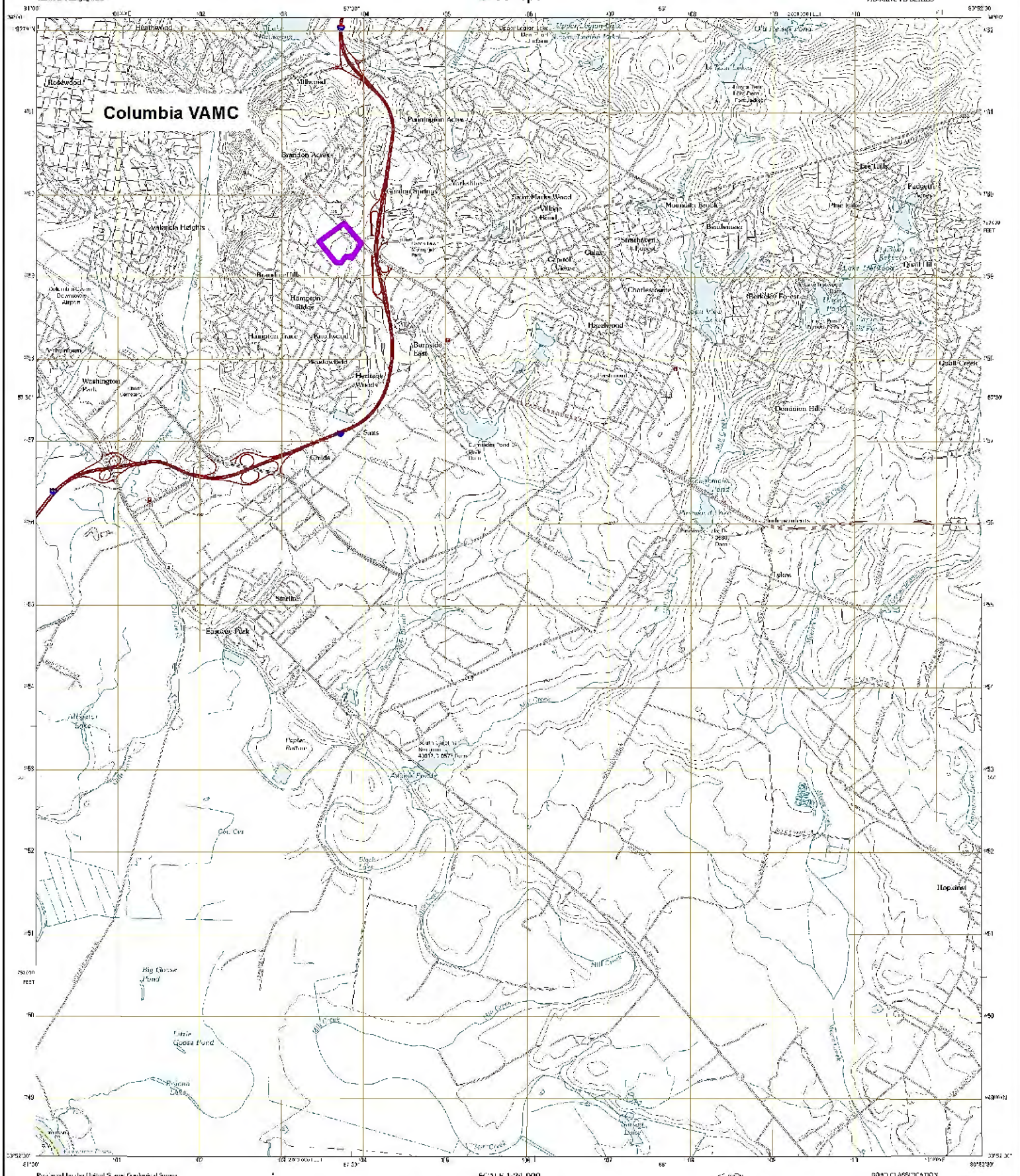


Project Location Map - Columbia, South Carolina



U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

USGS
science for a changing world

The National Map
US Topo

FORT JACKSON SOUTH QUADRANGLE
SOUTH CAROLINA
7.5-MINUTE SERIES

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000 meter grid: Universal Transverse Mercator, Zone 17S
10 000 foot ticks: South Carolina Coordinate System of 1983

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

ROAD CLASSIFICATION

FORT JACKSON SOUTH, SC
2011

Attachment B

List of Agencies Contacted

Columbia VAMC, South Carolina

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List of Agencies Contacted

U.S. Fish and Wildlife Service
Mr. Tom McCoy
Deputy Field Supervisor
U.S. Fish and Wildlife Service
South Carolina Ecological Services Field Office
176 Croghan Spur Road, Suite 200
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Review and Compliance Coordinator
SC Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905

South Carolina Department of Natural Resources
Mr. Alvin Taylor
South Carolina Department of Natural Resources
1000 Assembly Street
Columbia, SC 29201

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APPENDIX B

"ATTACHMENT C – INFORMATION CONCERNING HISTORIC PRESERVATION" AND CHECKLIST FROM THE VA ENVIRONMENTAL COMPLIANCE MANUAL

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ATTACHMENT C - INFORMATION CONCERNING HISTORIC PRESERVATION

	YES	NO
Is this property on the National Register of Historic Places (NRHP)?	X	
Is this property on the official listing of properties eligible for the National Register of Historic Places?		X
Is this property on the State Inventory of Historic Property?		X
Has this property been surveyed:		
- By the state		X
- By the holding agency if Federal property	X	
Did the survey include archaeology?		X
Are any nearby properties on the National Register of Historic Places (NRHP)?		X
Is any nearby property on the State inventory?		X
Has the State surveyed the nearby properties?	X	
If any nearby property is Federally owned, has the holding agency surveyed the property?		X
Does the State Archaeologist have any registered sites on any nearby property?		unknown

For all buildings to be demolished: **N/A**.
- approximate age _____
- uses _____
- exact number of buildings _____

For cemeteries:
- are remains still there or have they been moved? **N/A**
(This is especially important for former military posts.)

For all military posts: date established **N/A**.

Comments:

ENVIRONMENTAL ASSESSMENT SUMMARY (CHECKLIST)
DEPARTMENT OF VETERANS AFFAIRS

VA FACILITY: William Jennings Bryan Dorn VAMC
PROJECT NO.: _____
PROJECT TITLE: Proposed Photovoltaic/Solar Project
ASSESSED BY: PHE, Inc.

STAFF RECOMMENDATION DATE: March 2014

RECOMMENDATION:

☐ DEFER ACTION
☒ EA COMPLETE (FONSI)
☐ SUPPLEMENTAL EA REQUIRED
☐ EIS REQUIRED

CHECKLIST FOR PROPOSED ACTION

IMPACTS ATTRIBUTES

KEY: S = SEVERE M = MODERATE MI = MINIMAL N = NONE

S	M	MI	N	
☐	☐	☐	☒	AESTHETICS
☐	☐	☒	☐	AIR QUALITY
☐	☐	☐	☒	AVIATION/RADAR
☐	☐	☐	☒	COMMUNITY SERVICES
☐	☐	☒	☐	CULTURAL RESOURCES
☐	☐	☐	☒	ECONOMIC ACTIVITY
☐	☐	☒	☐	FLOODPLAINS, WETLANDS, COASTAL ZONE, ETC.
☐	☐	☐	☒	GEOLOGY AND SOILS
☐	☐	☐	☒	HISTORIC
☐	☐	☐	☒	HYDROLOGY AND WATER QUALITY
☐	☐	☐	☒	LAND USE
☐	☐	☒	☐	NOISE
☐	☐	☐	☒	POTENTIAL FOR GENERATING SUBSTANTIAL CONTROVERSY
☐	☐	☐	☒	REAL PROPERTY
☐	☐	☐	☒	RESIDENT POPULATION
☐	☐	☒	☐	SOLID/HAZARDOUS WASTE
☐	☐	☒	☐	TRANSPORTATION AND PARKING
☐	☐	☒	☐	UTILITIES (positive impacts only)
☐	☐	☒	☐	VEGETATION AND WILDLIFE
☐	☐	☐	☒	VISUAL RESOURCES
☐	☐	☐	☒	U.S. ENVIRONMENTAL REGULATIONS

APPENDIX C

PUBLIC NOTICES AND COMMENTS

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APPENDIX D

CONSTRUCTION EMISSIONS CALCULATIONS

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Construction Emissions Calculations

Table A-1 Construction Equipment Use

Equipment Type	Units	Days on Site	Hours Per Day	Hours
Plate Compactors Composite	2	100	4	800
Trenchers Composite	2	25	8	400
Air Compressors Composite	4	100	4	1600
Cranes Composite	2	150	7	2100
Forklift Composite	2	100	4	800
Tractors/Loaders/Backhoes	2	100	4	800
Excavators Composite	1	75	4	300
Generator Sets Composite	3	100	4	1200
Pavers Composite	2	25	8	400
Paving Equipment Composite	4	25	8	800

Table A-2 Construction Equipment Emission Factors (lbs/hour)

Equipment	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Plate Compactors Composite	0.0263	0.0314	0.0050	0.0001	0.0012	0.0012	4.3138
Trenchers Composite	0.4606	0.6384	0.1350	0.0007	0.0517	0.0517	58.7160
Air Compressors	0.3313	0.5635	0.0842	0.0007	0.0396	0.0396	63.6073
Cranes Composite	0.4553	1.1066	0.1276	0.0014	0.0466	0.0466	128.6352
Forklift Composite	0.2215	0.3551	0.0497	0.0006	0.0178	0.0178	54.3958
Tractors/Loaders/Backhoes	0.3747	0.4977	0.0728	0.0008	0.0341	0.0341	66.8003
Excavators Composite	0.5289	0.8299	0.1143	0.0013	0.0428	0.0428	119.5805
Generator Sets Composite	0.2974	0.5083	0.0702	0.0007	0.0296	0.0296	60.9927
Pavers Composite	0.5277	0.8112	0.1429	0.0009	0.0564	0.0564	77.9
Paving Equipment Composite	0.4273	0.7312	0.1082	0.0008	0.0502	0.0502	68.9

Source: CARB, 2007a. 2014 Efs

Table A-3 Construction Equipment Emissions (tpy)

Equipment	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Plate Compactors Composite	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trenchers Composite	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Air Compressors	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cranes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Forklift Composite	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tractors/Loaders/Backhoes	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Excavators Composite	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Generator Sets	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pavers Composite	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving Equipment	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table A-4 Delivery of Equipment and Supplies

Number of Deliveries	5						
Number of Trips	2						
Miles Per Trip	30						
Weeks of Construction	20						
Total Miles	6000						
Pollutant	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Emission Factor (lbs/mile)	0.01	0.01	0.00	0.00	0.00	0.00	2.80
Total Emissions (lbs)	77.06	85.51	11.38	0.17	3.30	2.73	16790.7
Total Emissions (tpy)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Source: CARB, 2007b. 2014 Efs

Table A-5 Paving Off Gasses

VOC Emissions Factor	2.62	lbs/acre	
	Area [acres]	**VOC [lbs]**	**VOC [tpy]**
All Combined Parking	1.50	3.93	0.0020
Total	**1.50**	**3.93**	**0.0020**

Source: SCAQMD, 1993.

Table A-6 Surface Disturbance

TSP Emissions	80	lb/acre				
PM_{10}/TSP	0.45					
$PM_{2.5}$/PM_{10}	0.15					
Period of Disturbance	30	days				
Capture Fraction	0.5					
	Area [acres]	**TSP[lbs]**	**PM_{10}[lbs]**	**PM_{10}[tons]**	**$PM_{2.5}$[lbs]**	**$PM_{2.5}$[tons]**
Construction	1.50	3600	1620	0.81	122	0.06
Total	**1.50**	**3600**	**1620**	**0.81**	**122**	**0.06**

Sources: USEPA, 1995 and USEPA, 2005.

Table A-7 Worker Commutes

Number of Workers	20						
Number of Trips	2						
Miles Per Trip	30						
Days of Construction	150						
Total Miles	180000						
Pollutant	**CO**	**NO_x**	**VOC**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Emission Factor (lbs/mile)	0.0066	0.0007	0.0007	0.0000	0.0001	0.0001	1.1026
Total Emissions (lbs)	1188.64	117.87	126.41	1.92	16.53	10.69	198463.0
Total Emissions (tpy)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Source: CARB, 2007b. 2014 Efs

Table A-8 Total Construction Emissions (Tons per Year)

Activity/Source	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$	CO_2
Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Delivery of Equipment and Supplies	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Gasses	0.00	0.00	0.002	0.00	0.00	0.00	0.00
Surface Disturbance	0.00	0.00	0.00	0.00	0.81	0.06	0.00
Worker Commutes	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Construction Emissions	**0.0**	**0.0**	**0.0**	**0.0**	**0.8**	**0.1**	**0.0**

APPENDIX E

FINDING OF NO SIGNIFICANT IMPACT

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
DEPARTMENT OF VETERANS AFFAIRS (VA)
PROPOSED SOLAR PHOTOVOLTAIC (PV) SYSTEMS PROJECT
WILLIAM JENNINGS BRYAN DORN VA MEDICAL CENTER (VAMC)
COLUMBIA, RICHLAND COUNTY, SOUTH CAROLINA

Introduction

An Environmental Assessment (EA), included herein by reference, was prepared to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic impacts associated with the Department of Veterans Affairs (VA) proposed installation and operation of solar photovoltaic (PV) systems at the William Jennings Bryan Dorn VA Medical Center (VAMC), hereafter referred to as the "Dorn VAMC," located at 6439 Gamers Ferry Road, Columbia, Richland County, South Carolina. Preparation of the EA was required in accordance with the National Environmental Policy Act of 1969 ([NEPA]; 42 United States Code [USC] 4321 *et seq*.), the Council on Environmental Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and 38 CFR Part 26 (*Environmental Effects of the Department of Veterans Affairs Actions*).

1. Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to install and operate renewable energy sources, specifically solar PV systems, at the Dorn VAMC, in Columbia, South Carolina as well as to meet the goals and objectives of federal energy requirements per the Energy Policy Act of 2005, Executive Orders (EOs) 13423 and 13514, and the Energy Independence and Security Act of 2007 (EISA). As such, the Proposed Action is needed to assist the VA in complying with the Energy Policy Act of 2005, identified EOs, and the EISA.

2. Description of the Proposed Action and Alternatives

Proposed Action

The VA's Proposed Action is to install and operate solar PV systems at the Dorn VAMC. This action would provide electricity to the campus, portions of which operate continually. The VA selected the locations with minimal shading and limited impact to hospital operation and parking. The Proposed Action considers seven rooftop solar PV locations and three parking lot PV canopy arrays. One of the proposed canopy arrays involves the 1.5-acre expansion of an existing parking lot (Parking Lot 12).

Alternatives Considered

The VA undertook a sequential planning and screening process, seeking reasonable alternatives for the Proposed Action. This process, described in the EA, included developing and applying site-specific screening criteria. Through this analysis, the VA identified ten viable locations that would be included for analysis in the EA. The ten locations include seven roof-mounted PV arrays and three ground-mounted, canopy-style PV arrays. The VA has current plans to pursue the three parking lot canopy arrays only, but maintains the building rooftop PV configurations as potential options for the future. Thus, these rooftop arrays are included as part of the Proposed Action for the EA. Through the VA's screening process, the VA determined this alternative to be the only alternative that met all of the VA's screening criteria, as well as the purpose of and need for the Proposed Action. All of the other locations and alternative electrical systems evaluated or considered failed to meet the VA's screening criteria.

The EA examined in-depth two alternatives, the Preferred Action Alternative and the No Action Alternative, defined as follows:

- **Preferred Action Alternative (Proposed Action):** Under the Preferred Action Alternative, the VA would install and operate PV systems at the locations shown in Figure 2 of the EA. The Proposed Action would be implemented as described in Section 2.2 of the EA.

- **No Action Alternative:** Under the No Action Alternative, the Proposed Action would not be implemented. The Dorn VAMC would continue to purchase all of its required electricity from South Carolina Electric and Gas Company (SCE&G). No additional renewable energy sources would be installed on the property. The Dorn VAMC would not contribute to the VA's ability to meet the requirements set forth in EO 13423, EO 13514, the Energy Policy Act of 2005, and the EISA.

While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, this alternative was retained to provide a comparative baseline against which to analyze the effects of the Proposed Action, as required under the CEQ Regulations (40 CFR 1502.14).

3. Environmental Analysis

The EA evaluated potential direct, indirect, and cumulative effects of implementing these two alternatives to: aesthetics; air quality and greenhouse gases (GHGs); biological resources (vegetation, wildlife, and threatened and endangered species); community services; cultural resources; geology, topography, and soils; groundwater; land use; the noise environment; socioeconomics (economy, population, housing, employment, Environmental Justice [EO 12898], and Protection of Children [EO 13045]); solid and hazardous waste; surface water resources (watersheds, rivers, lakes, and coastal zones); transportation and parking; utilities; and wetlands and floodplains.

The EA's analysis identified potential adverse effects (predominantly short-term) in the areas of air quality/GHG; biological resources; cultural resources; solid and hazardous wastes; surface water resources; transportation and parking; and floodplains. The EA also identified potential beneficial impacts in the areas of air quality/GHG and utilities. Based on the analysis contained in the EA, the VA determined that the construction and operation of the proposed PV system under the Preferred Action Alternative would not have significant adverse impacts, either individually or cumulatively, on the physical, biological, or human environments, provided the best management practices (BMPs) specified in the EA are implemented.

Under the No Action Alternative, the Proposed Action would not be implemented. The EA did not identify any significant adverse impacts either individually or cumulatively, on the physical, biological, or human environments. This alternative, however, would fail to meet the goals and objectives of the federal energy requirements.

Mitigation Measures and BMPs

The VA would implement mitigation measures to ensure any impacts are maintained at acceptable, less-than-significant levels, in accordance with the recommendations presented in the EA. The VA would also implement BMPs and comply with applicable state and federal regulatory requirements, as specified in the EA, to further minimize effects.

Air Quality: During construction, reasonable measures would be required to prevent unnecessary amounts of particulate matter (i.e., dust) from becoming airborne. Such precautions, typical of all construction projects at the Dorn VAMC, would include:

- Use of water for control of dust during construction operations;

- Covering open equipment for conveying or transporting material likely to create objectionable air pollution when airborne; and

- Promptly removing spilled or tracked dirt or other materials from paved streets.

Biological Resources: Potential adverse impacts to special-status species (such as the red-cockaded woodpecker [RCW] and Rafinesque's big-eared bat), as well as migratory species could be reduced or avaoided with the implementation of appropriate BMPs, including:

- Avoiding the clearing of loblolly pine trees during the migratory bird nesting season (April through July) to reduce impacts to species protected under the Migratory Bird Treaty Act. If it is not practical to clear trees outside of this time frame, a qualified biologist should survey the site to ensure that no active nets are disturbed.

- A qualified biologist should survey the site to ensure that no RCW inhabit the loblolly pines proposed for clearing. Should RCW be found within the Dorn VAMC, VA would consult with USFWS to determine the best way to reduce or avoid potential adverse impacts.

The U.S. Fish and Wildlife Service (USFWS), South Carolina Ecological Services Field Office, was consulted regarding impacts to biological resources; however, a response from the USFWS has not been received as of the data of this EA.

Cultural Resources: The South Carolina Department of Archives and History, State Historic Preservation Office (SHPO) was consulted regarding impacts to cultural and historical resources; however, a response from the SHPO has not been received as of the date of this EA. Although the EA concludes that no effect to cultural or historical resources is anticipated from the Proposed Action, if the SHPO determines the Proposed Action may have an adverse effect, the VA will initiate formal consultation to mitigate these effects. A determination by the SHPO must be received by the VA prior to construction of the Proposed Action.

Solid and Hazardous Waste: During construction and maintenance activities, implementation of standard construction BMPs would serve to reduce the potential for release of vehicle operating fluids (e.g., oil, diesel, gasoline, antifreeze, etc.) from construction vehicles and lubricants washed from the PV systems.

During operation, if a catastrophic event occurred that released or could release hazardous materials contained within the PV panels, the VA would repair any damage to the PV systems and rapidly remediate any minor releases in accordance with federal, state, and local requirements.

At the end of their useful life (estimated to be 20 to 25 years), the VA would recycle or dispose of the waste PV systems in compliance with all existing federal, state, and local regulations governing the characterization and disposal of waste to prevent the heavy metals contained within the panels from being released into the atmosphere or groundwater.

Surface Water Resources: The Dorn VAMC does not contain any surface water features within the boundaries of the campus. The expansion of Parking Lot 12 would increase the amount of impervious cover at the site by approximately 1.5 acres. Temporary stormwater management control measures would be required during construction, and permanent control upgrades would be required to manage stormwater from the newly expanded parking lot. Appropriate erosion and sediment control BMPs would be implemented during construction to reduce stormwater and sediment runoff to the extent practicable. Such BMPs may include:

- Installing appropriate silt fencing and/or other appropriate erosion-control measures around the perimeter of the Parking Lot 12 expansion area construction footprint prior to construction, notably on downslope areas.

- Using straw bales as and where necessary to further minimize offsite erosion potential.

- Seeding the unpaved disturbed area with native vegetation immediately upon the completion of construction.

Any spills occurring during construction would be managed using appropriate pollution prevention control measures.

Transportation and Parking: If practicable, the VAMC would construct the Parking Lot 12 expansion first, prior to the other PV projects on campus. This schedule would mitigate the impacts of reduced parking by adding an additional 240 parking spots. Implementing additional scheduling and construction BMPs (e.g., scheduling construction deliveries during off-peak parking hours, minimizing use of parking spaces for staging areas, and limiting storage of construction materials to the designated staging area), could further reduce or avoid potential transportation and parking impacts.

If final project design determines that such scheduling is not feasibile, the Dorn VAMC would implement phased construction methods, such that construction would occur at only one parking lot area at a time, in order to reduce potential impacts to traffic and parking during construction.

Wetlands and Floodplains: No National Wetland Inventory (NWI)-mapped wetlands or surface waterbodies currently exist onsite. According to digital FEMA flood mapping data, two small 100-year floodplain areas exist within the Dorn VAMC campus boundaries, equaling approximately 1.1 acres of floodplain on the property. One approximate 0.7-acre floodplain area is located directly in back of the main hospital Building 100, on its southwest side. The other 1.09-acre area is located in the far northeast corner of the property, with 0.41 of that area located within the Dorn VAMC campus boundaries.

During construction activities, the construction contractor should, to the extent possible, stage vehicles and equipment outside the floodplain. At a minimum, vehicles and equipment should not be left in floodplain areas when they are not in use and during overnight hours, weekends, and other periods of inactivity.

4. Regulations

The Proposed Action would not violate NEPA, the CEQ Regulations, 38 CFR Part 26, or other federal, state, or local environmental regulations. This would be achieved by implementing the measures summarized above.

5. Commitment to Implementation

The VA affirms their commitment to implement the EA and FONSI in accordance with NEPA, the CEQ Regulations, and 38 CFR Part 26. Implementation is dependent on funding. The VA would ensure that adequate funds are requested in future years' budget(s) to achieve the goals and objectives set forth in the EA and FONSI, and to fund the commitments described above.

6. Agency and Public Involvement

The VA has consulted with appropriate federal, state, and local regulatory agencies. There are no federally-recognized Native American tribes identified as having ancestral ties to the Columbia area,

including the Preferred Action Alternative site. The consultations are documented in the EA. Concerns expressed by pertinent regulatory agencies have been addressed in the EA.

In addition, the VA provided the Draft EA to the Richland County Public Library located at 1431 Assembly Street, Columbia, South Carolina, for a 30-day public review and comment period. No substantive comments were provided during the public review process.

7. Finding of No Significant Impact

After careful review of the EA, I have concluded that implementation of the Preferred Action Alternative would not generate significant controversy or have a significant impact on the quality of the human or natural environment.

Therefore, per the NEPA, the CEQ Regulations, and 38 CFR Part 26, I am signing this FONSI. This analysis fulfills the requirements of the NEPA and the CEQ Regulations. An Environmental Impact Statement will not be prepared.

_____ _____

David L. Omura, DPT, MHA, MS Date
Acting Medical Center Director
William Jennings Bryan Dorn
Veterans Affairs Medical Center
Columbia, South Carolina