PUBLIC DRAFT
ENVIRONMENTAL ASSESSMENT OF THE PROPOSED
EXPANSION AND IMPROVEMENTS OF THE SACRAMENTO VALLEY NATIONAL CEMETERY
DIXON, CALIFORNIA

Prepared for:

Department of Veterans Affairs
425 I Street NW
Washington DC 20001

Prepared by:

Anderson Engineering of Minnesota, LLC
13605 1st Avenue North, Suite 100
Plymouth, MN 55441
763.412.4000

Anderson Engineering Project No. 14626

June 6, 2018
# Table of Contents

Executive Summary ........................................................................................................... 1

Section 1.0 Introduction .................................................................................................... 3
  1.1 Background ............................................................................................................. 6
  1.2 Purpose and Need ................................................................................................. 8
  1.3 Decision Making .................................................................................................. 11

Section 2.0 Alternatives & Environmental Effects .............................................................. 12
  2.1 Proposed Action .................................................................................................. 12
  2.2 Alternatives Analysis ........................................................................................ 16

Section 3.0 Affected Environment and Environmental Consequences ............................... 18
  3.1 Aesthetics .......................................................................................................... 18
  3.2 Air Quality .......................................................................................................... 19
  3.3 Cultural Resources ............................................................................................. 21
  3.4 Geology, Topography, and Soils ........................................................................ 22
  3.5 Hydrology and Water Quality ........................................................................... 29
  3.6 Wildlife and Habitat .......................................................................................... 31
  3.7 Noise .................................................................................................................. 33
  3.8 Land Use .......................................................................................................... 37
  3.9 Floodplains and Wetlands ............................................................................... 39
  3.10 Solid and Hazardous Materials ....................................................................... 43
  3.11 Transportation and Parking ............................................................................. 44
  3.12 Cumulative Impacts ......................................................................................... 45
  3.13 Potential for Generating Substantial Controversy ........................................... 47

Section 4.0 ......................................................... Public Involvement ............................................. 48
  4.1 Public Involvement ............................................................................................ 48
  4.2 Agency Coordination ........................................................................................ 48
  4.3 Native American and Section 106 NHPA Consultation ................................... 49

Section 5.0 Management and Minimization Measures ..................................................... 50
  5.1 Management and Minimization Measures ....................................................... 52
  5.2 Design Avoidance and Minimization Measures .............................................. 52

Section 6.0 ......................................................... Summary and Conclusion ............................ 54

Section 7.0 ......................................................... List of Preparers ........................................... 55

Section 8.0 ........................................................ References ................................................ 56

Section 9.0 ......................................................... List of Acronyms and Abbreviations ............. 57
Section 10.0  ................................................................. List of Agencies and Persons Consulted 58
Section 11.0  ................................................................. List of Environmental Permits Required 60

List of Tables
Table 1. Technical Resource Area Analysis Summary ......................................................2
Table 2. Technical Resource Areas Retained for or Eliminated from Further Analysis in this SEA ........................................................................................................7
Table 3. Peak Noise Levels Expected from Typical Construction Equipment .................34
Table 4. Average Sound Exposure Limits Needed to Reach the Maximum Allowable Daily Dose of 100% .............................................................................................35
Table 5. Best Management Practices Incorporated into the Proposed Action ...............51

List of Figures
Figure A General Location Map ..........................................................................................5
Figure B Site Aerial ...........................................................................................................10
Figure C Master Plan ......................................................................................................13
Figure D Phase II Design .................................................................................................13
Figure E Geology Site Map ..............................................................................................23
Figure F Topographic Site Map ........................................................................................24
Figure GSolano County Soil Survey Map ........................................................................25
Figure H Site Zoning Map .................................................................................................39
Figure IFEMA Floodplains/Waterways Map ...................................................................41
Figure J National Wetlands Inventory Map .......................................................................42

List of Appendices
Appendix A Agency Correspondence
Appendix B Cultural & Tribal Data
Appendix C Biological Assessment
Appendix D Site Photos
Appendix E Public Involvement
Executive Summary

This Site-Specific Environmental Assessment (SEA) is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (NEPA; 42 United States Code 4321 et seq.), the President’s Council on Environmental Quality Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations Parts 1500-1508), 38 Code of Federal Regulations Part 26 (Environmental Effects of the Department of Veterans Affairs Actions), and the VA NEPA Interim Guidance for Projects, dated 30 September 2010 (VA 2010).

Previously, the U.S. Department of Veterans Affairs (VA) completed environmental assessments (EA’s) during site selection in 2002 and the first phase of cemetery development in 2005, both resulting in Findings of No Significant Impact. Now the VA is preparing this SEA to evaluate the Phase II expansion and improvements of the Sacramento Valley National Cemetery (Phase II Project).

In this SEA, the VA, National Cemetery Administration (NCA) identifies, analyzes, and documents the potential physical, environmental, cultural, and socioeconomic impacts associated with the Phase II Project. This proposed project would cover approximately 60 acres within the boundary of the Sacramento Valley National Cemetery and provide for 10 years of burial operations including casket, columbarium, and in-ground cremation sites; and provide a committal shelter, supporting infrastructure, irrigation, landscaping, visitor amenities, signage, and operational facility improvements.

The purpose of the Preferred Action is to continue to enable the NCA to provide eligible Veterans and their families with a national cemetery of sufficient size and capacity to serve the projected needs in the north-central California region for the next 10 years.

The Preferred Action is needed to meet the NCA’s goal of providing eligible Veterans with reasonable access to VA burial options. Currently, interment or burial site availability is projected not to meet future Veteran needs and additional capacity is necessary.

Two alternatives are analyzed in this SEA:

- The Proposed Action to expand and improve the Sacramento Valley National Cemetery in the western portion of existing cemetery property, to provide 10 years of burial expansion.

- The No-Action Alternative to not expand and improve the Sacramento Valley National Cemetery, but continue burial operations until the cemetery capacity is reached and conducting site maintenance activities thereafter. This will not meet the purpose and need.

Table 1 summarizes the resource areas analyzed in this SEA and the potential environmental effects of the Proposed Action. A detailed analysis of the potential effects to these resource areas is included in Section 3.
Table 1. Technical Resource Area Analysis Summary

<table>
<thead>
<tr>
<th>Technical Resource Area</th>
<th>Potential Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetics</td>
<td>Adverse, Less-than-significant</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Adverse, Less-than-significant</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>Less-than-significant</td>
</tr>
<tr>
<td>Geology, Topography, and Soils</td>
<td>Less-than-significant</td>
</tr>
<tr>
<td>Hydrology and Water Quality</td>
<td>Adverse, Less-than-significant</td>
</tr>
<tr>
<td>Wildlife Habitat</td>
<td>Adverse, Less-than-significant</td>
</tr>
<tr>
<td>Noise</td>
<td>Adverse, Less-than-significant</td>
</tr>
<tr>
<td>Land Use</td>
<td>Less-than-significant</td>
</tr>
<tr>
<td>Floodplains and Wetlands</td>
<td>Adverse, Less-than-significant</td>
</tr>
<tr>
<td>Solid and Hazardous Materials</td>
<td>Less-than-significant</td>
</tr>
<tr>
<td>Transportation and Parking</td>
<td>Adverse, Less-than-significant</td>
</tr>
</tbody>
</table>

This SEA includes Best Management Practices (BMPs) that will minimize potential adverse effects to the analyzed technical resource areas. The minimization measures are described in Section 5.

Several public agencies and other interested parties were consulted throughout the SEA process in accordance with NEPA. All agency correspondence is included in Appendix A. Any comments received during the SEA process will be included in Appendix E to the Final SEA.
Section 1.0 Introduction

The U.S. Department of Veterans Affairs (VA) National Cemetery Administration (NCA) honors Veterans and their families with final resting places in national shrines and with lasting tributes that commemorate their service and sacrifice to the nation. VA operates 136 national cemeteries and 33 soldiers' lots and monument sites in 40 states and Puerto Rico. More than 4 million Americans are buried in VA's national cemeteries (VA 2017). VA's Office of Construction and Facility Management's mission is to advance VA's mission in support of the nation's Veterans by planning, designing, constructing, and acquiring major facilities; and setting design and construction standards.

In 2002, NCA developed a Programmatic Environmental Assessment (PEA) for the construction and operation of a new national cemetery near Dixon, Solano County, California. The cemetery is formally known as Sacramento Valley National Cemetery (Cemetery) and is located approximately 30 miles southeast of downtown Sacramento, California. Per the PEA, the total extent of the VA's Cemetery property is 561 acres, with initial Phase I development of the central portion of the land area equal to 86 acres (Phase I Project). The remaining 475 acres is currently utilized for agricultural production, with intentions by the VA to phase development of remaining lands into cemetery land use as projected need dictates. Figure A depicts the general location and site boundary of the Sacramento Valley National Cemetery.

In this Environmental Assessment (EA), VA identifies, analyzes, and documents the potential physical, environmental, cultural, and socioeconomic impacts associated with the proposed Sacramento Valley National Cemetery Phase II Expansion and Improvement Project (Phase II Project). Approximately 60 acres adjoining west of existing cemetery facilities is proposed for development and expansion to provide for an estimated 10 years of memorial and interment services for Veterans and their family members. This phase of development is needed to meet the NCA's goal of providing eligible Veterans with reasonable access to VA interment and memorial services. Proposed interment improvements include capacity expansions of casket, columbarium, and in-ground cremation sites; construction of a committal shelter; and development and improvement of supporting infrastructure to include irrigation, landscaping, visitor amenities, signage, and other operational facility improvements. Phase II construction is proposed to commence approximately Fall 2018, with completion anticipated Fall 2020.

Two alternatives are analyzed in this EA:

- **VA's Preferred Action** to expand and improve the Sacramento Valley National Cemetery in the western portion of the existing cemetery facility, thus providing 10 years of interment expansion

- **The No-Action Alternative** to Sacramento Valley National Cemetery expansion/improvement is to continue burial operations until the current cemetery capacity is reached, with site maintenance activities to continue thereafter.

This EA has been prepared pursuant the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [USC] 4321 et seq.), the President's 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). This EA also has been prepared following the VA NEPA Interim Guidance for Projects (VA 2010). These requirements specify that VA must evaluate the potential
environmental impacts of VA facilities, operations, and related funding decisions prior to taking action. VA must apply the NEPA review process and use the information to make an informed decision prior to undertaking a proposed action. An EA provides sufficient evidence and analysis for determining whether an action would cause significant environmental impacts (requiring an Environmental Impact Statement) or the agency can issue a Finding of No Significant Impact (FONSI) (40 CFR 1508.9). A FONSI is a decision document that briefly presents the reasons why an action would not have a significant effect on the human environment (40 CFR 1508.13). As required by NEPA and the implementing regulations from CEQ and VA, the alternative of taking no action is evaluated, providing a baseline for comparison of potential impacts from the action alternative(s).
Figure A. General Location Map for Sacramento Valley National Cemetery
1.1 Background

In August 2002, VA finalized a Programmatic Environmental Assessment (PEA) that identified, analyzed, and documented the potential physical, environmental, cultural, and socioeconomic effects associated with VA’s proposed selection and acquisition of the 1,133 acre Hayman site for the future establishment of a National Cemetery in Solano County, California (URS 2002). The PEA assessed the potential effects of site selection and generally assessed the potential effects of constructing and operating a National Cemetery at that location.

As a result of the PEA process, in 2004 VA selected and acquired a 561-acre portion of the Hayman Site in Solano County, California (see Figure A) for construction and operation of a National Cemetery (Cemetery). In 2005, the VA developed a detailed engineering design to be analyzed for site-specific potential effects associated with the initial Phase I Project.

This SEA is “tiered” from the PEA and previous SEA and analyzes the site-specific, potential environmental effects that could occur at the Cemetery and within the Proposed Action’s Region of Influence (ROI) based on the final design for the Phase II Project. This approach is in full compliance with CEQ Regulations that state that NEPA documents should be “analytic rather than encyclopedic” (40 CFR Part 1502.2a) and that scoping should be used to “identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (40 CFR Part 1506.3), narrowing the discussion of these issues in the statement [EA] to a brief presentation of why they would not have a significant effect on the human environment or providing a reference to their coverage elsewhere” (40 CFR Part 1501.7(a)(3)).

As such, VA is using "Incorporation by Reference" per 40 CFR Part 1502.21 and "Tiering" per 40 CFR Part 102.20 to reduce the volume of this SEA and rely on the information previously developed and analyzed as part of the PEA.

Table 2 identifies all technical resource areas considered per the VA NEPA Interim Guidance for Projects, dated 30 September 2010 (VA 2010), and succinctly provides the rationale as to why each technical resource area was either retained for further analysis or eliminated from this SEA, referencing the Final PEA (URS 2002) where appropriate.
Table 2. Technical Resource Areas Retained for or Eliminated from Further Analysis in this SEA.

<table>
<thead>
<tr>
<th>Technical Resource Area</th>
<th>Retained for Further Analysis</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetics</td>
<td>Yes</td>
<td>Minor short term impacts during construction phase. Site-specific Environmental Assessment (SEA) analyzes additional site-specific construction and operation information, including building and landscape design. See Section 3.1 for more information.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Yes</td>
<td>Negligible adverse impacts of air quality. SEA analyzes additional site-specific construction and operation information, See Section 3.2 for detailed discussion.</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>Yes</td>
<td>No adverse impacts. Any potential effects that may occur would be reduced or avoided with implementation of the Best Management Practices (BMPs) identified in Table 5. See Section 3.3 for detailed discussion.</td>
</tr>
<tr>
<td>Geology, Topography, and Soils</td>
<td>Yes</td>
<td>The SEA analyzes additional site-specific construction and operation information, including topography, cut/fill data, and regional effects of agricultural land conversion. See Section 3.4 for a detailed discussion.</td>
</tr>
<tr>
<td>Hydrology and Water Quality</td>
<td>Yes</td>
<td>Compliance with regulations will reduce potential impacts to water quality during construction. No impacts to groundwater. The SEA analyzes additional site-specific construction and operation information. See Section 3.5 for a detailed discussion.</td>
</tr>
<tr>
<td>Wildlife and Habitat</td>
<td>Yes</td>
<td>The SEA analyzes additional site-specific construction and operation information. See Section 3.6 for a detailed discussion.</td>
</tr>
<tr>
<td>Noise</td>
<td>Yes</td>
<td>No substantial increase in noise. The SEA analyzes additional site-specific construction and operation information, including gun salutes during committal services. See Section 3.7 for a detailed discussion.</td>
</tr>
<tr>
<td>Land Use</td>
<td>Yes</td>
<td>No adverse impacts. Consistent with general land use plan for the area. Any potential effects that may occur would be reduced or avoided with implementation of the BMPs identified in Table 5. See Section 3.8 for detailed discussion.</td>
</tr>
<tr>
<td>Floodplains and Wetlands</td>
<td>Yes</td>
<td>New facilities in the expansion area will not be in the floodplain. No impacts to wetlands. Not in Coastal Management Zone. The SEA analyzes additional site-specific construction and operation information. See Section 3.9 for a detailed discussion.</td>
</tr>
<tr>
<td>Socioeconomics</td>
<td>No</td>
<td>Possible short-term localized beneficial impacts due to increased local employment and personal income during construction, and indirect positive effects to the local economy during operation. There would be no effect on health or safety risks to children during construction or operation. As such, this issue is not analyzed in depth in this SEA.</td>
</tr>
</tbody>
</table>
### Site-Specific Environmental Assessment

**Sacramento Valley National Cemetery Expansion and Improvements**

**Dixon, California**

**June 6, 2018**

<table>
<thead>
<tr>
<th>Technical Resource Area</th>
<th>Retained for Further Analysis</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Services</td>
<td>No</td>
<td>No substantial adverse effect on community services during construction and operation, including fire, police, or other public services. As such, this issue is not analyzed in depth in this SEA.</td>
</tr>
<tr>
<td>Solid and Hazardous Materials</td>
<td>Yes</td>
<td>Less-than-significant effects during construction and operation, including release of vehicle fluids and maintenance materials. Minor increase in solid waste during construction phases and similar ongoing generation as current levels from cemetery operations. The SEA analyzes additional site-specific construction and operation information. See Section 3.10 for a detailed discussion.</td>
</tr>
<tr>
<td>Transportation and Parking</td>
<td>Yes</td>
<td>Minor short-term adverse impacts during construction phasing on local roadways near the project site. No substantial increase in visitor or employee trips. The SEA analyzes additional site-specific construction and operation information. See Section 3.11 for a detailed discussion.</td>
</tr>
<tr>
<td>Utilities</td>
<td>No</td>
<td>No substantial adverse effects on Utilities during construction and operation because the existing electrical, water, and irrigation resources are adequately sized. As such, the issue is not analyzed in depth in this SEA.</td>
</tr>
<tr>
<td>Environmental Justice</td>
<td>No</td>
<td>No substantial adverse effects on Environmental Justice during construction and operation because no specific concentrations of minority or low-income populations are in the vicinity of the Site. As such, this issue is not analyzed in depth in this SEA.</td>
</tr>
</tbody>
</table>

### 1.2 Purpose and Need

The **purpose** of the Proposed Action is to expand and improve the Sacramento Valley National Cemetery in the western portion of the existing cemetery property, to provide 10 years of interment expansion.

The Proposed Action is **needed** to serve projected Veteran needs and avoid depleting cemetery internment sites, thus meeting the NCA’s goal of providing eligible Veterans with reasonable access to VA internment options.

VA has established three objectives that define outcomes for VA interment programs. One of these objectives is to ensure that interment needs of Veterans and eligible family members are met. The National Cemetery Administration (NCA) further defines this objective on the assumption that the interment needs of a Veteran are met if they have reasonable access to interment option, where reasonable access to an interment option is defined as “…a first interment option (whether for casketed remains or cremated remains, either in-ground or in columbaria) in a National or State Veterans Cemetery…available within 75 miles of the Veteran’s place of residence.” VA established a 75-mile service area standard because NCA data show that more than 80 percent of persons interred in National Cemeteries resided within 75 miles of the cemetery at the time of death. The NCA estimates a Veteran population of approximately 315,000 living...
within the 75-mile radius of the Cemetery. The Phase II Project would provide additional capacity for Veterans and their families.

In accordance with the Veterans Millennium Health Care and Benefits Act of 1999, Public Law 106-117, VA was directed to identify areas in need of new national cemeteries. The NCA conducted a demographic study of Veterans in California in 2001, and Sacramento was identified as an optimum focal point for a new National Cemetery.

Thus, the construction and operation of Sacramento Valley National Cemetery following the completion of the Final PEA (URS 2002) and the current proposed Phase II Project meets VA’s purpose and need as set forth above.
Figure B. Site Aerial
1.3 Decision Making

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 regulations identified in Section 1.1.

This SEA has been developed to:
- Inform decision makers and the public of the possible environmental effects of the Proposed Action and its considered alternatives, as well as methods to reduce these effects
- Document the NEPA process
- Allow for public input into the decision-making process
- Allow for informed decision-making by the Federal government
- Evaluate the potential effects

This Federal decision-making includes identifying the actions that the Government would commit to undertake to minimize environmental effects, as required under the NEPA, CEQ Regulations, and 38 CFR Part 26.

The intent of this document is to provide the VA with appropriate information to make an informed decision on whether to implement the Preferred Action Alternative or the No-Action Alternative. Specifically, information pertaining to physical, environmental, cultural, and socioeconomic effects of the decision are presented and implications evaluated.
Section 2.0 Alternatives & Environmental Effects

This Section provides the reader with necessary general information regarding the Proposed Action and its alternatives, including those that VA initially considered, but eliminated, and the reasons for eliminating them. The screening criteria and process developed and applied by VA to hone the number of reasonable alternatives are described, providing the reader with an understanding of VA’s rationale in ultimately retaining for analysis one action alternative, the Preferred Action Alternative, that best meets VA’s purpose of and need for the Proposed Action.

2.1 Proposed Action

2.1.1 Site Specific National Cemetery Components

2.1.1.1 Cemetery Elements

Based on current planning data, the proposed Phase II Project would be the second phase of a multiple phase plan that serves to serve Veterans and their families in the north-central California region for the next 10 years. All phases of development have been designed to avoid environmentally constrained areas (e.g., wetlands, floodplains). Where possible, environmentally constrained areas would be left undeveloped, and serve as scenic locations at the cemetery.

The Phase II Project is approximately 60 acres and will be generally located abutting west of the existing developed area (Figure C), thus expanding the total developed cemetery to 212 acres. The Phase II Project would include the following:

- Interment areas:
  - Approximately 10,813 pre-placed crypt full casket gravesites;
  - Approximately 10,206 traditional in-ground cremains and approximately 11,200 columbarium niches;
  - Green burial section to accommodate 300 total burial sites;
- Additional Committal Shelter for a total of three at the cemetery;
- Expansion of existing cortege lanes;
- Expand and upgrade existing irrigation system to incorporate gravesite expansion areas;
- Landscaping in accordance with latest NCA design standards;
- Expansion of roadway system, walks, and parking necessary for gravesite areas;
- Addition of site furnishings, receptacles, and signage to accommodate added interment volume; and
- Utilities, including potable water, storm sewer, electric, and other supporting infrastructure, as required.

Based on the final design of the Phase II Project, expansion would provide all facilities necessary to maintain, operate, and provide interment sites for at least 10 years. In total, the Phase II Project would include approximately 32,579 gravesites. Phase II Project construction is projected to commence Fall of 2018, with anticipated completion Fall 2020.
Figure C. Master Plan for Sacramento Valley National Cemetery

Figure D. Phase II Design for Sacramento Valley National Cemetery
2.1.1.2 Other Site-Specific Elements

An existing U.S. Department of Interior’s high voltage transmission line transects the Cemetery in a north-south direction, with two large towers intercepting cemetery viewsheds. The Phase II Project proposes to utilize lands associated with the 125-foot wide transmission line easement with improvements to include construction of east-west bisecting roads and installation of a stormwater detention basin. No interment sites will be placed within the easement; however, a new green burial section will be placed adjacent to the easement, providing approximately 300 burial sites to blend into the naturalized pond area. This area will be an extension of the naturalized pond area and is designed to not provide permanent irrigation or mowing. Native plant material will be the ground cover.

2.1.1.3 Proposed Use Levels

The National Cemetery is typically used every day throughout the year. Approximately 600 visitors are expected to visit the cemetery daily. On weekdays 22 permanent staff and 15-20 grounds maintenance contractors are present on-site. Up to 20 funeral processions per weekday (average 20 cars per procession), generating approximately 400 vehicle round trips per day on a busy day would be anticipated. The cemetery would be closed to the public at night.

2.1.1.4 Stormwater Management

The stormwater conveyance system for the Phase II Project will mimic previous development plans and be designed to convey the 10-year, 24-hour storm event. The dry detention basin will be designed to store the 100-year, 4-day storm event as required by the City of Dixon. The current dry basin east of the administration building will collect a portion of the runoff within Phase II Project and remaining runoff will generally be directed to one of two dry basins located below the transmission line between the north road and south property line. These basins will be connected by a 24-inch HDPE storm drain and will be drained via electric pump within 48 hours after a rain event. Implementing these design parameters will provide relief for the cemetery if the surrounding creeks and canals have swelled with regional runoff and are unable to accept immediate stormwater discharge.

2.1.1.5 Utility Requirements - Electricity, Natural Gas, Telecommunications, Sewer, and Potable and Irrigation Water Supply

Operation of the proposed National Cemetery expansion would require consumption of additional utilities from Solano County. VA will continue to coordinate with local service providers to ensure that any increase in consumption would remain in accordance with available local capacities. During preparation of the PEA, VA contacted service providers about the availability of the following utilities available and present at the cemetery:

- Irrigation water—Solano County Irrigation District;
- Potable water—Solano County Water Agency; and
- Electrical service—Pacific Gas and Electric (PG&E).

The Phase II Project does not require design of a new or expansion of gas services or sanitary/septic system. The Final PEA concluded that basic utilities in Solano County (i.e., water, sewer, electric, and natural gas) are provided by various utility providers and are suitable for the
National Cemetery. VA would be required to submit design plans to the utility providers to obtain appropriate permits as necessary.

Based on the final design irrigation plan, the Phase II Project will build upon the existing irrigation system. The additional 32-acre irrigated landscaped area will be sustained by water supplied by the existing onsite irrigation pond, with supplemental irrigation water supplied by the irrigation ditch transecting the Cemetery. System water use for Phase II is estimated at 160,000 GPD and 28.6 million GPY. This is based on water demands from 18 acres of fully irrigated fescue/bluegrass, 45 acres of temporarily irrigated native prairie grass, and 14 acres of irrigated trees. Additional electricity consumption due to upgraded central control computer, water pumps, irrigation satellite controllers, and remote control valves; however, additional demand is not significant.

2.1.1.6 Sustainability Considerations

Cost-effective energy conserving features would be incorporated into the Phase II Project design, including drought resistant grass plantings; energy management control systems and high-efficiency motors; lighting; and heating, ventilation, and cooling (HVAC) systems. In accordance with VA's sustainability principles and applicable requirements, the proposed facilities would be designed and constructed to comply with current and emerging Green Infrastructure/Low-Impact Development (GI/LID) requirements of Federal proposed actions, including Executive Order (EO) 13423: Strengthening Federal Environmental, Energy, and Transportation Management (24 January 2007); EO 13514: Federal Leadership in Environmental, Energy, and Economic Performance (5 October 2009); Section 438 of the Energy Independence Security Act (EISA) (3 March 2007); and the Energy Policy Act (EPAct) of 2005 (8 August 2005).

As part of the design process, VA would specifically comply with the US Environmental Protection Agency’s (USEPA) Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the EISA (USEPA 2009).

2.1.2 Environmental Best Management Practices, Permits, and Approvals

Land improvement activities associated with implementation of the Proposed Action include land clearing, excavation, and soil stockpiling, grading, installing various site improvements, creating roads, creating retention basins, and extending select utilities.

Prior to constructing any component of the Proposed Action, VA would obtain all applicable Federal, State, and local permits and approvals necessary to comply with applicable laws. Applicable environmental permits required, identified in part through the Final PEA (URS 2002), and are described in Section 11. Furthermore, VA would attempt to comply to the best extent possible with the guidelines of applicable local permits.

In certain situations, impacts are not imminent, but instead have varying potentials for impact. In any scenario, impacts would be mitigated by implementing BMPs listed in Table 5 and serve to proactively "minimize" adverse environmental effects, as identified through the PEA and this SEA process.
2.2 Alternatives Analysis

NEPA requires federal agencies to analyze alternatives to address the purpose and need. A No-Action Alternative must also be described to inform the public what actions would be taken and the effects of those actions should the Proposed Action not be implemented. Because the cemetery expansion area was acquired for the purpose of expansion of the facilities, the only alternatives to the Proposed Action would involve the same number and types of facilities as identified in the Master Plan or there may be minor variations in the arrangement of the various facilities for each phase. The arrangements of various activities would be similar and would result in the same impacts as the Proposed Action, and therefore, further analysis for each phase would not be needed. The Proposed Action and No-Action alternatives are described below.

2.2.1 Initial Alternatives Design Development (Screening Criteria)

VA identified the following ten primary screening criteria to guide the detailed conceptual design for the proposed facility. VA developed these site-specific criteria based on the physical, operational, and location requirements of the Proposed Action, as well as cost, environmental issues, and other factors, as described below. Satisfaction of VA’s screening criteria would provide locations and facilities best suited to meet the purpose of and need for the Proposed Action, while minimizing overall project costs and environmental effects. These criteria included:

1. **Components.** The components of the design should meet the minimum requirements set forth in NCA guide (VA 2008) and described in Section 2.1.1.

2. **Capacity.** The design should provide sufficient capacity for the needs of Veterans and their families within the region for at least 10 years.

3. **Availability.** The design is available as quickly as possible, preferably in time for Fall 2018 construction. This design should include all required basic cemetery components, as well as the expanded roadways and utility infrastructure, and should be sited in the central portion of the existing cemetery, allowing a logical pattern for future phases of development.

4. **Aesthetic Buffers/Land Use Compatibility.** The design should incorporate sufficient, treed buffers along portions of the boundaries to provide an aesthetic screen.

5. **Stormwater Management.** The design should not increase flooding of adjacent lands and should serve to properly manage on-site stormwater, potentially reducing flooding in the area in compliance with Section 438 of the EISA.

6. **Maximize Use of Disturbed Areas and Existing Topography.** The design should incorporate existing topography to the maximum extent possible to minimize required earthwork, and should focus development in previously grazed/disturbed on-site grasslands to minimize the need for tree removal. Existing mature, native, and healthy trees should be incorporated into the site design to the maximum extent possible.

7. **Avoid Sensitive Environmental Areas.** The design should avoid 100-year floodplains, and wetlands/"Waters of the US," to the maximum extent possible, including retaining sufficient buffers around these areas. The design should comply with applicable State and Federal environmental permitting requirements and processes, as well as consider local permitting guidelines.
8. **Cost.** The design should result in the most cost-effective development of the cemetery, including minimizing required cut-and-fill and other construction costs.

9. **Access.** The design should preserve the primary cemetery access from Midway Road, with a secondary service access road connecting the northwest side of project area to Midway Road. Additionally, the design should preserve the rural access route for Solano County Water Agency located on the north and south boundaries of the cemetery. Both the main and service access roads should be sited and installed to ensure proper traffic line-of-sight and to minimize traffic. A temporary construction/contractor access road will additionally be constructed and should be sited from Midway Road (north portion of the cemetery) and extend south toward the Phase II Project area.

10. **Utilities.** The design should ensure that facilities requiring utilities are sited as proximate as possible to existing utility infrastructure to reduce construction costs.

### 2.2.2 Preferred Action Alternative

VA identified one reasonable alternative. The final Phase II Project design best met all of VA's screening criteria for the Proposed Action. This alternative is shown in Figure D and described in Section 2.1.

### 2.2.3 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not be implemented. The existing cemetery would continue to service VA, Veterans, and their families until reaching full capacity. The remainder of the site likely would be developed for use by others and in accordance with local zoning regulations.

While the No-Action Alternative will 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 Part 1502.14).

### 2.2.4 Alternatives Eliminated from Detailed Consideration

Because the cemetery expansion area was acquired for phased expansion of the facilities, the only alternatives to the Proposed Action would involve the same number and types of facilities as identified in the Master Plan or there may be minor variations in the arrangement of the various facilities for each phase. The arrangements of various activities would be similar and would result in the same impacts as the Proposed Action, and therefore, further analysis for each arrangement would not be needed.
Section 3.0 Affected Environment and Environmental Consequences

This Section describes the baseline (existing) physical, environmental and cultural conditions at Sacramento Valley National Cemetery in Dixon, California, and its general vicinity, with emphasis on those resources potentially affected by the Proposed Action.

In this SEA, effects are identified as either significant, minor (i.e., common effects that would not be of the context or intensity to be considered significant under the NEPA or CEQ Regulations), or no effect. Where appropriate and clearly discernible, each effect is identified as either adverse or beneficial.

For each resource area, the potential significance of the Proposed Action environmental effects is determined according to its “context” and “intensity”, as specified in CEQ Regulation (40 CFR Part 1508.27):

- Context refers to the significance of an effect on society as a whole (human and national), to an affected region, to affected interests, or to just the locality. In other words, the context measures how far the effect would be “felt.”

- Intensity refers to the magnitude or severity of the effect, whether it is beneficial or adverse. Intensity refers to the “punch strength” of the effect within the context involved.

3.1 Aesthetics

The approximately 60-acre Phase II Project will be generally located west of the existing cemetery development. The topographic gradient is generally flat and areas not developed as cemetery consist of agricultural fields. These fields are currently planted in sunflowers and hay. The Cemetery is bound to the north and south by drainage channels.

Adjacent areas surrounding the Phase II Project area consist mainly of agricultural fields, but additionally include a relatively small industrial development to the west, a farm property surrounded by agricultural fields to the southwest, and another farm property to the northwest. Sweeney Creek bounds the project area to the south and west, and McCune Creek is located to the east. The limit of the Cemetery property extends westward toward Lewis Road (excluding developed northeast areas), northward to Midway Road, eastward to Batavia Road, and southward toward Sweeney Creek.

3.1.1 Effects of the Preferred Action Alternative

During construction periods associated with the Phase II Project there would be minor, temporary, adverse effects. Construction activities at the site would convert the agricultural field to managed turf and landscaped features on the property. Construction activities temporarily effecting aesthetics include parked construction equipment, excavation, grading, mud after rain events, heavy equipment and the workers’ personal vehicles using the adjoining roads, and silt fences surrounding the site. These activities, along with the additional personnel, would be short-term, temporary and limited to the duration of construction.

BMPs would include maintaining and adding trees, shrubs and native grasses to the Phase II Project perimeter to obstruct views of construction and implement the construction-related BMPs for dust control as described in Section 3.2 for Air Quality. BMP plantings will be routinely
maintained and will be incorporated into the final cemetery design. Roadways buildings, and signage will additionally be maintained.

Following construction and stabilization of exposed soils, aesthetics would improve dramatically and the Phase II Project site would take on the peaceful characteristics of a National Shrine. Construction equipment will be removed, construction traffic will subside, and temporary effects will be minimized. After construction, exposed soil will be graded accordingly and construction fencing removed. The site will be planted with native trees, shrubs and grasses to prevent erosion, reduce water usage, and to screen the Site. Turf grass will be planted in the sections designated for casket plots. Manicured shrubs and tree plantings would be placed around certain features, such as the flagpole and the columbarium and in between burial sections, to instill a sense of privacy and seclusion. Two stormwater detention dry basins will be located within the site and will be surrounded by native grasses, possibly attracting birds and wildlife. The planned Committal Shelter will be incorporated into the rolling landscape to be inconspicuous and not to disturb the natural flow of the site. The remaining undeveloped 385-acre portion of the Cemetery property would remain available for leased farming until such a time when the next phase of development would occur. This would limit the aesthetic effects until the full buildout of the Cemetery.

3.1.2 Effects of the No-Action Alternative

Under the No-Action Alternative, no expansion of the Cemetery would occur, thus the purpose and need would not be met. No adverse or beneficial effects would occur and the area would remain agricultural in nature, consisting of unimproved cropland within the existing Cemetery property.

3.1.3 Minimization/Management Measures

Based on the final Phase II Project design, construction and expansion of the site would produce short term, adverse, visual aesthetic effects to the Site. Potential minimization measures may include (1) incorporation of existing large trees into the cemetery design wherever possible, (2) maintaining and adding trees to the existing tree-lined Site perimeter to obstruct views of construction, (3) creating and routinely maintaining landscaped areas, buildings, roadways, and signage, and (4) implement the construction-related BMPs for dust control (see Section 3.2 for dust control BMPs). No additional management measures were identified.

3.2 Air Quality

National Ambient Air Quality Standards (NAAQS) are mandated by the Clean Air Act and administered by the EPA, with monitoring and enforcement delegated to state authorities, Air Quality Control Regions (AQCR). Established standards are based on health-based concentrations for ambient air, and regulated criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO\textsubscript{2}), ozone (O\textsubscript{3}), sulfur dioxide (SO\textsubscript{2}), particulate matter measuring less than 2.5 microns in diameter (PM\textsubscript{2.5}), and lead (Pb). Local AQCR that exceed the NAAQS are deemed in non-attainment of the standard.

The Cemetery is under the jurisdiction of the California Air Resources Board, Yolo-Solano Air Quality Management District, and EPA Region 9. Yolo-Solano Air Quality Management District (Yolo-Solano AQMD) is the AQCR for Yolo and Solano Counties, and operates and maintains a system of five air quality monitoring stations, with one additional station operated and maintained
by ARB. According to the Yolo-Solano AQMD, the two-county area is currently designated as non-attainment for PM_{10} and O_3, and in full attainment for PM_{2.5}, CO, Pb, NO_2, and SO_2 criteria pollutants. The O_3 and PM_{10} emissions are likely attributed to vehicle emission, fugitive dust, and other industrial processes within the AQCR.

Given current land use of the Phase II Project area (i.e., leased agricultural land), the only sources of regulated air emissions are located at the adjacent developed area (e.g., from boilers, generators, other minor equipment) as well as those from typical agricultural field activities. As such, the VA does not have, and is not required to have, a Title V operating permit based on current conditions.

Possible sensitive air quality receptors adjacent to the Cemetery are limited and include warehouse/commercial areas and farmsteads (Figure A). No schools, hospitals, or other sensitive air quality receptors located within 0.5 miles of the Cemetery have been identified.

### 3.2.1 Effects of the Preferred Action Alternative

The Final PEA (Section 3.5.2) concluded that construction and operation of a typical National Cemetery would be expected to have minor direct and indirect, short- and long-term adverse effects to the existing air quality environment around the Site.

Based on the final design, Phase II Project construction activities having the potential to generate fugitive dust emissions include land clearing and regrading the approximately 60-acre project area and excavating soil from approximately 10.8 acres for extended detention basins. Fugitive dust resulting from construction activities may cause adverse health effects and nuisance concerns, such as reduced visibility on nearby roadways.

Sources of air emissions resulting from the regular operation of the completed Phase II Project design would include visitor and staff vehicles. Although a greater number of vehicles would be present on-site compared to the No-Action Alternative, the Proposed Action would result in less vehicle emissions in the region because Veterans and their families would not be required to travel greater distances to other National Cemeteries in California.

### 3.2.2 Effects of the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met; the National Cemetery would not be expanded and no significant adverse air quality effects would result. However, greater vehicle emissions would be generated in the region by visitors’ vehicles because Veterans and their families would be required to travel greater distances to other National Cemeteries in California.

### 3.2.3 Minimization/Management Measures

Implementing BMPs to reduce fugitive dust emissions during construction will minimize potential adverse effects to local air quality. To minimize the potential for adverse, short-term air quality effects, VA will implement the following typical dust control BMPs, as applicable, and in accordance with State and local requirements:

- VA will comply with the California Air Resource Board, Air Quality Regulations;
- Use appropriate dust suppression methods during on-site demolition and construction activities. Available methods include application of water, dust palliative, or soil stabilizers;
use of enclosures, covers, silt fences, or wheel washers; and suspension of earth-moving activities during high wind conditions;

- Maintain an appropriate speed to minimize dust generated by vehicles and equipment on unpaved surfaces;
- Cover haul trucks with tarps;
- Stabilize disturbed areas through re-vegetation or mulching if the area will be inactive for several weeks or longer; and
- Visually monitor all demolition and construction activities regularly, particularly during extended periods of dry weather, and implement dust control measures when appropriate.

Listed dust-reducing BMPs will be communicated to the construction contractors. Onsite managers will be responsible for addressing air quality issues if they arise. Implementation of BMPs will reduce the potential for short-term adverse air quality effects to acceptable levels, notably for nearby sensitive receptors (i.e., farmsteads).

VA will secure any required, individual minor air emissions permits from the California Air Resources Board, as appropriate and based on the final design and prior to operation of the Phase II Project area.

3.3 Cultural Resources

A Section 106 review and survey of the Site was performed on January 2-3, 2018 by Sean Michael Jensen of Genesis Society. A literature review and archaeological survey of the Phase I and Phase II area were completed in compliance with the California State Historic Preservation Office (SHPO). No previously recorded prehistoric cultural resources were found within the project area. One residential/ranch complex historic archaeological site was recorded within the southcentral portion of the reviewed area. This site was recorded and evaluated by architectural historians Herbert, Webb and Johnson in 2001, and the site recommended not eligible for inclusion in the National Register of Historic Places. The site area was subsequently examined during the 2005 investigation where the reporters confirmed that the site had been totally razed and removed, and consequently updated the Primary Records with this information.

Consultation with SHPO resulted in concurrence that a finding of no adverse effect pursuant to 36 CFR Part 800. (d)(1) is appropriate (see Appendix A). Additionally, the Native American Heritage Commission (NAHC) produced negative findings concerning the presence of sacred lands within or adjacent to the project area. The Native American representatives on the NAHC contact list were requested to supply any information they might have concerning prehistoric sites or traditional use areas within, adjacent or near the project area. No responses were received from the contacted parties. As no prehistoric cultural resources were identified within the proposed area of development (area of potential effects), no additional consultation was conducted. See Appendix B for Cultural/Tribal data.

3.3.1 Effects of the Preferred Action Alternative

The Preferred Action Alternative would have no effect on cultural resources at the Phase I Project area. As per the previous Section 106 review and site survey, no prehistoric archaeological sites were located on the property.
3.3.2 Effects of the No-Action Alternative
Selection of the No-Action Alternative would not meet the purpose and need, but would result in no adverse effects to any documented or future undocumented cultural resources.

3.3.3 Minimization/Management Measures
There would be no adverse effects to cultural resources at the Phase II Project site area since it was determined through the Section 106 process that no cultural resources were found on the site. While this process does not exclude the remote possibility that a deeply buried archaeological site may be found, the chances of new discovery is unlikely since the site is in an area of low probability for cultural resources; several miles away from a significant body of water. BMPs that would be incorporated if cultural artifacts were identified would include ceasing work, contacting the SHPO, and maintaining security around the newly discovered area until a professional archaeologist and the SHPO can view the artifacts. Work may continue on other portions of the site.

3.4 Geology, Topography, and Soils
The Final PEA (Section 3.1.1-3.1.3) presented background information on geology, topography, and soils. The Final PEA described potential effects to these resources from construction and operation of a National Cemetery, as well as BMPs to minimize potential effects.

3.4.1 Geology
The Phase II Project area is located on the western edge of the Central Valley of California in an area of relatively moderate potential seismicity (Figure E).

3.4.2 Topography
The Phase II Project area is relatively flat with minimal relief. Project area elevations range from approximately 65-70 feet above mean sea level (amsl), and slopes generally to the east. McCune Creek is located east of the existing cemetery and Sweeney Creek runs along the west and south borders of the proposed Phase II Project area (Figure F). The project area will be graded to accommodate cemetery land use. Solano County requires a grading permit for grading over 5,000 square feet, and therefore review of the project grading plan is required (see section 11.0 for required permits and approvals).

3.4.3 Soils
A geotechnical investigation of the Phase II Project area was conducted by URS as a part of a broader study of the geological and seismic characteristics of the site in 2002. Mapped soil units located within the project area include Capay silty clay loam, Clear Lake clay, San Ysidro sandy loam, Sycamore silty clay loam, Reiff fine sandy clay loam, Yolo loam/clay substratum, and Yolo silty clay loam soils. The Phase II Expansion area consists of San Ysidro sandy loam (SeA), San Ysidro sandy loam, thick surface (SfA), Reiff Fine sandy loam (Ra), and Yolo loam, clay substratum (Yr) (Figure G).
Figure E. Geology Site Map of Sacramento Valley National Cemetery
Figure F. Topographic Map of Sacramento Valley National Cemetery
Figure G. Soil Survey Map of Sacramento Valley National Cemetery
3.4.4 Effects of the Preferred Action Alternative

The following effects of the Preferred Action Alternative has occurred in a phased approach. As described previously, development of the Early Turnover area occurred in 2006, with the remainder of the Phase I Project area developing over the following five years. The Preferred Action Alternative involves grading and selective berming to buffer strong winds and limit noise and unpleasant views. Effects of these actions are limited, with changes to site topography to gradually slope toward roadways and site drainage patterns redirected stormwater to one of two stormwater detention dry basins located beneath the transmission line between the north and south property line. Remaining areas not developed as cemetery are planned to be developed in phases until full Cemetery buildout. During that period, lands will remain available to be leased for agricultural crop land use. This approach will significantly limit effects on soils and topography, and extend total effects over approximately 100 years.

Geology

From a regional perspective, the Phase II project area is located along the western edge of the Central Valley of California in an area of relatively moderate potential for seismic activity. Documented tectonic activity has occurred in the vicinity. The coast Ranges to the west contain many active faults that are associated with the northwest-trending San Andreas Fault system. Recommended design factors based on the potential for seismic activity have been included in the design phase. Due to design considerations, the Preferred Action Alternative would have no effects on geology. No significant effects to mineral resources will occur.

Topography

Based on the Preferred Action Alternative, changes to topography and drainage would be required during Phase II Project construction to accommodate facilities, roads, and burial areas. However, the long-term topographic changes would not result in significant adverse effects. The Preferred Action Alternative is designed to preserve the natural surface topography and current drainage patterns to the greatest extent practical. During construction, direct and indirect, short-term soil erosion and sedimentation effects could possibly occur as the proposed structures, parking lots, roads and gravesites are constructed. Grading actions would strip current vegetation, disrupt the surface and soil profiles and compact the soil. The soil would be temporarily susceptible to wind and water erosion; however, BMPs will be implemented during land disturbing activities to lessen impacts.

Long-term topographic changes would not result in significant adverse effects. Drainage changes caused by modifying the expansion area topography, resulting in an increase in stormwater run-off would be covered under the stormwater management plan. The topography of the remaining 385 acres will remain in a similar state to what it is at present day, until such time when subsequent phased cemetery development takes place.

Soil

Based on the Preferred Action Alternative, construction of the approximately 60-acre Phase II Project area would include land clearing/grubbing, excavation, regrading, installation of interior roadways and parking areas, and stormwater retention basin creation. Regrading would occur throughout approximately 60 acres (100%) of the Phase II Project area.

During construction, temporary soil erosion and sedimentation will occur in conjunction with site development. Exposed soils during construction make them susceptible to wind erosion which
increases the amount of dust particles in the air causing a potential for short term respiratory hazards and additional dust on local roads.

Grading and earthwork will be part of the final engineering design. Surface runoff, has the potential to result in increased sedimentation in the on-site stormwater management systems, and the potential for off-site discharges of sediment-laden runoff.

No long-term erosion and sediment effects will occur after construction of the Preferred Action Alternative. Any potential long-term soil erosion effects occurring due to increased impervious surfaces would be minimized by including an appropriately designed stormwater management system as part of final site design, including the construction of two extended detention basins. Landscaping and appropriate native grasses would be planted for erosion control. Trees and shrubs will also be planted to further stabilize any disturbed soils.

Over the long-term, the proposed design of the Preferred Action Alternative would result in the conversion of approximately 60 acres of the total Prime and Unique Farmland Soils on the Site, as defined and regulated by the Farmland Protection Policy Act (FPPA) (7 USC 4201, et seq.). This act was designed to ensure preservation of agricultural lands that are of statewide or local importance.

Operation of the cemetery following Phase II Project development would have no adverse significant effects on soil erosion and sedimentation. No long-term soil erosion would occur due to increased impervious surfaces on the site. Effects would be reduced by the planned stormwater management system, which includes operation of two extended detention basins totaling approximately 10.8 acres (2.6 and 8.2 acres).

Based on the final design, the Site does not include any soil within a 100-year floodplain.

**Prime Farmland**

Construction and operation of the Phase II Project area would result in the conversion and loss of approximately 60 acres of farmland to nonagricultural use. The remaining 25 acres of farmland at the site would be available for agricultural use via lease. Eventually, at full build-out of the 561-acre Cemetery property would be converted to nonagricultural use.

As described in the PEA, the Proposed Action is subject to FPPA requirements and as such the VA submitted the Farmland Conversion Impact Rating (Form AD-1006) for comments and recommendation with Natural Resources Conservation Service (NRCS) on October 17, 2001. NRCS concurred that the Sacramento National Cemetery development would have no significant adverse effect on prime farmland.

### 3.4.5 Effects of the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met. There will be no effects on the geology, topography, or soils at the Phase II Project site since the Sacramento National Cemetery would not be expanded. Should the proposed site area ultimately be developed for another use, effects would result from that new development, and would depend upon the nature of the development.
3.4.6 Minimization/Management Measures
The implementation of the following management measures and BMPs would reduce the potential effects to soil to less-than-significant levels by controlling and limiting soil erosion and sedimentation impacts.

Geology
No management measures are necessary for geology.

Topography
No management measures are necessary for topography.

Soils
Implementing BMPs to reduce erosion and sedimentation impacts during construction would further minimize the potential adverse effects on local soils and water quality. The construction contractor will develop a stormwater pollution prevention plan and obtain stormwater permit coverage under the National Discharge Elimination System (NPDES) from CalEPA for the Preferred Action Alternative. In addition, the construction contractor would comply with Solano County Stormwater Management Regulations. The NPDES permit would require stormwater runoff and erosion management using BMPs to include earth berms, stormwater detention basins, vegetative buffers, filter strips, spill prevention and management techniques, etc. The construction contractor would implement the following as appropriate and necessary to protect surface water quality in accordance with the NPDES permit:

- Design paved areas to drain to the stormwater management system;
- Install and monitor erosion-prevention measures BMPs, such as silt fences and water breaks, stormwater detention basins, filter fences, sediment berms, interceptor ditches, straw bales, rip-rap, and/or other sediment control structures; re-spread stockpiled topsoil; and seed/re-vegetate areas temporarily cleared of vegetation;
- Retain on-site vegetation to the maximum extent possible;
- Plant and maintain soil-stabilizing vegetation on disturbed areas;
- Use native vegetation to re-vegetate disturbed soils; and
- The construction contractor would obtain all required permits before any proposed construction activities commence and would adhere to permit conditions during all on-site construction activities.

If measures in the NPDES permit and Solano County Stormwater Management Regulations are correctly implemented for site development, direct soil erosion and resulting indirect sedimentation impacts would be minimized to less-than-significant levels. Successful implementation of these measures would ensure that the Preferred Action Alternative is in compliance with Federal water quality standards and minimizes both the short- and long-term potential for erosion and sedimentation. Implementation of these measures would maintain identified effects at less-than-significant levels by properly controlling and limiting soil erosion and sedimentation.

Prime Farmland
To satisfy the requirements of FPPA, the VA completed Form AD-1006, Farmland Conversion Impact Rating and submitted it to the NRCS for their input and consultation during development.
of the Phase I Project. The NRCS has cleared the Preferred Action Alternative of any significant FPPA concerns. Development of the Phase II Project area would leave the remaining 385 acres for leased agricultural land use until the area would be completely built out.

3.5 Hydrology and Water Quality

3.5.1 Surface Water

As described in the Final PEA (Section 3.2.1), the Site is within the Central Valley aquifer system. The Phase II Project area is bounded by Sweeney Creek to the south and McCune Creek, a tributary to Sweeney Creek, to the east. The two creeks are currently under the jurisdiction of the Solano County Water Agency (SCWA) and are used for flood control waterways. The SCWA regularly maintain these two creeks. These two creeks, whose combined area is approximately two acres, contain water for most of the year and fall under jurisdiction of the United States Army Corps of Engineers (USACE) and the California Department of Fish and Wildlife (CDFW). The Preferred Action Alternative will not impact either of the creeks.

The Solano Irrigation District (SID) maintains two canals that border the Cemetery. The Weyland Canal flows along the northern border of the Cemetery on the south side of Midway Road. The second canal, the Kilkenny Canal, enters the Cemetery property at the northwest corner, approaches Sweeney Creek, and then continues underground just south of the confluence of the two creeks. The Preferred Action Alternative will not impact either of the canals.

3.5.2 Groundwater

As described in the Final PEA (Section 3.2.2), the Phase II Project area is underlain by the Central Valley aquifer.

The Sacramento Valley National Cemetery is located within the Solano Irrigation District (SID) and, therefore, is subject to SID assessments and charges. Most of the Phase II Project area has agricultural irrigation water available during the SID’s irrigation season, typically March through October, and weather permitting. The SID’s facilities in this area are open canals and drainage channels (Kilkenny and Weyland Canals). The SID owns the property rights of the canals. The SID operates a domestic well and tank located in the northwest corner of the site at the intersection of Lewis and Midway Roads.

3.5.3 Effects of the Preferred Action Alternative

Surface Waters

The Preferred Action Alternative has the potential to result in direct or indirect adverse effects to Waters of the US (e.g., Sweeney and McCune Creeks). However, VA anticipates that through environmentally sensitive site design, good engineering practices, as well as consultation with pertinent Federal, State, and local regulatory agencies will avoid or manage potential effects to less-than-significant levels. Waters of the US would be avoided to the greatest extent possible.

Groundwater

It is not anticipated that groundwater would be adversely affected by the Preferred Action Alternative. Deep excavation, significantly below the water table, is not anticipated; therefore, potential dewatering is unlikely. If limited areas of deeper excavation are required, appropriate groundwater engineering controls would be utilized during construction to ensure no long-term
adverse effects to groundwater. Adverse effects to groundwater by the Preferred Action Alternative are anticipated to be less-than-significant.

During operation of the Phase II Project area, water used for irrigation will come from the existing irrigation pump that is supplied by the irrigation pond onsite and the adjacent water canal.

A total of 86 acres will be irrigated following completion of the Phase II Project construction, and will include 45 acres of temporarily irrigated native prairie grass, 27 acres of fully irrigated fescue/bluegrass, and 14 acres of irrigated trees. Irrigation water use is estimated at 160,000 GPD.

Based on standard modern burial practices, it is unlikely that embalming fluid or other decomposition byproducts would be released into the soil and/or groundwater. The standard NCA design incorporates (for full casket burials) sub-surface concrete crypts, an entire section of which would be installed during site construction. Using this technique, the caskets are not buried directly in the soil, rather set in a pre-placed concrete crypt (established turf and soil temporarily removed, crypt lid removed, casket placed, followed by the reverse process to complete). Modern embalming fluids are biodegradable, as the primary active ingredients are no longer arsenic based. VA is not involved in the funeral and embalming process. Additionally, as selection of either cremains interment or columbaria placement increase, the potential for soil or groundwater contamination commensurately decreases, as no embalming fluids are used.

**Stormwater**

According to a preliminary comparison of the pre-development and post-development conditions for a variety of storm events, the post-development stormwater runoff was shown to be significantly reduced compared to the pre-development runoff values. The Phase II Project area does not currently have stormwater or water quality measures, all run-off drains to the southeast into Sweeny and McCune Creek. The stormwater management facilities would ensure that the post-development discharge conditions would be less than, or equal to the pre-development conditions.

The Phase II Project design, coupled with good engineering practices and consultation with pertinent Federal, State, and local regulatory agencies, avoids placement of any roads, structures, or other man-made structures in or adjacent to water resources. Wetlands/Waters of the US and floodplains would be avoided to the greatest extent practical. Therefore, overall potential effects on water resources by the Preferred Action Alternative would be minor.

### 3.5.4 Effects of the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met. No additional construction by VA would occur and there would be no effects to water resources beyond the current usage at Sacramento Valley National Cemetery. Should the Phase II Project area ultimately be developed for another use, effects would result from that new development, and would inherently depend upon the nature of the development.

### 3.5.5 Minimization/Management Measures

As necessary and as appropriate, VA would implement the following minimization, avoidance, and management measures to reduce potential adverse effects to surface water resources (Waters of the US/wetlands) to acceptable, less-than-significant levels. These measures are fully developed as part of this SEA, concurrent with the site design efforts.
The final Phase II Project design avoids on-site wetlands/Waters of the US to the greatest extent possible. Construction activities would comply with applicable permit(s) from, the USACE and State agencies (CalEPA). Additionally, construction activities would comply, to the extent possible, with local agencies’ requirements (Solano County), to minimize adverse effects to wetlands/Waters of the US. The final design would maintain a buffer of undisturbed land around identified wetlands/Waters of the US where possible. General construction practice BMPs would also be implemented to prevent any potential hydraulic oil spills from constructions vehicles from reaching surface water resources.

To minimize potential adverse effects to wetlands/Waters of the US, the Phase II Project design has considered the following:

- Preparation and implementation of a SWPPP;
- Avoidance of on-site surface waters and floodplains where possible;
- Balance of pre/post stormwater retention and/or treatment;
- Obtain any necessary permits from appropriate agencies; and
- Inspect and maintain construction vehicles in good working order and maintain a spill kit.

In being good environmental stewards, the VA has considered the following State and local policies and has incorporated them to the greatest extent possible in the final design as follows:

- Pre/post 100-year volume stormwater retention; and
- Stormwater Management Facilities (SWMFs) and other related stormwater management infrastructure for the site. The SWMFs would be designed to accommodate excess runoff generated by the proposed cemetery expansion and treat it prior to discharge.

In addition, to further minimize potential adverse effects to the site, the Phase II Project design would implement the BMPs indicated in Table 5.

Consideration and possible implementation of listed minimization measures and BMPs would ensure identified water resources effects by the Preferred Action Alternative are maintained at less-than-significant levels.

3.6 Wildlife and Habitat

3.6.1 Threatened and Endangered Species

During the Final PEA preparation process, the United States Fish and Wildlife Service (USFWS), and the California Department of Fish & Game (CDFG) were contacted to identify any potential for the presence of State or Federally-listed threatened or endangered species on or in the vicinity of the site. The CDFG identified the following species of concern or critical habitat: the Swainson’s Hawk, Great Egret and Green Heron Rookery, and Giant Garter Snake habitat. Offsite CNDD-listed occurrences and sensitive habitats include: Burrowing Owl, Valley Elderberry Longhorn Beetle habitat, White-Tailed Kite, Vernal Pool Fairy Shrimp. It was determined that the Sacramento Valley National Cemetery had ample acreage to avoid sensitive areas during development.
A Biological Resources Evaluation was conducted by Marcus H. Bole & Associates (MHBA) for the proposed Phase II Project area in December 2017 (See Appendix C). Field surveys did not reveal the presence of special status plant or wildlife species within the portion of the Cemetery proposed for development. Several protected bird species including the Swainson’s hawk, *Buteo swainsonii*, and the Burrowing Owl, *Athene cunicularia*, have been recorded in trees to the north and along the fringes of agricultural lands south of the Cemetery. Neither of these species were observed during onsite surveys; however, surveys were conducted outside of the nesting season for these birds when their presence would be easily identified.

### 3.6.2 Habitat

A Biological Resources Evaluation was prepared by MHBA dated January 31, 2018, to evaluate for the potential presence and use of the Site by threatened and endangered species and/or critical habitat for such species (see Appendix C). The developed portions of the Phase II Project area consists of buildings and infrastructure constructed during Phase I Project development in 2006. There is no habitat or special status plants or wildlife within the developed portions of the Phase II Project area. The primary vegetative community within undeveloped portions of the Phase II Project area is currently productive row crop. The second-most dominant vegetative community is currently ruderal vegetation. This community is found along roadsides, creek borders and fallow, undeveloped portions of the Phase II Project area. It is comprised of a variety of weedy plant species. Within the Phase II Project area there are no native trees. Landscaped ornamental trees were observed within the developed portion of the Cemetery. Bordering the Cemetery along the north side of Midway Road are several large diameter Eucalyptus trees, *Eucalyptus ssp*. These trees support stick nests that are used by raptors during the nesting season between March and August.

Based on findings of the Biological Resources Evaluation report and information previously received from the USFWS and CDFG (documentation is contained in MHBA 2018), no Federal or State-listed threatened and/or endangered species or critical habitat for such species were identified for the site.

### 3.6.3 Effects of the Preferred Action Alternative

The Preferred Action Alternative at the site would have less-than-significant potential adverse effects on biological resources. No Federal or State-listed threatened and/or endangered species designated critical habitats were identified for the site. However, should construction clearing and grading be unavoidable during the migratory bird nesting season then a qualified biologist should verify the absence of biological resources.

VA anticipates that potential effects to biological resources by the Preferred Action Alternative would be managed to minor levels through environmentally sensitive site design and implementation of good engineering practices.

### 3.6.4 Effects of the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met. No construction by VA would occur, resulting in no effects to vegetation or wildlife habitat in the proposed Phase II Project area.
3.6.5 Minimization/Management Measures
VA will implement the following BMPs to reduce effects to biological resources during construction and operation:

- Construction will be timed to avoid nesting periods of migratory birds on the site and protected under the Migratory Bird Treaty Act. This Act prohibits the taking of migratory birds, their nests, and eggs. Thus, it is recommended that any tree removal at the site be conducted outside the migratory bird nesting season of March through August so that nests are not disturbed. If it is not practical to clear the site outside of this time frame, a qualified biologist should survey the site prior to clearing to ensure that no active nests are disturbed;
- Follow-up nesting season surveys shall be conducted in advance of construction and grading activities between March and August;
- The proposed design will avoid Sweeney and McCune Creek and closely adjoining areas by maintaining a buffer area; and
- Native species will be used to the greatest extent practicable when re-vegetating land disturbed by construction to avoid the potential introduction of non-native or invasive species.

Implementation of these BMPs would ensure biological resources effects are maintained at less-than-significant levels.

3.7 Noise
The Final PEA (Section 3.5.1) described the background noise environment at the site and surrounding area as typical of a rural area. Based on a typical National Cemetery design, the Final PEA concluded that adverse short term noise effects to the surrounding community would be generated during construction, though not necessarily during operation, of a National Cemetery. Sensitive noise receptors are limited and include scattered farmsteads adjoining to the Site. No other sensitive noise receptors are identified. Currently, noise generators in the vicinity of the Cemetery include aircraft noise from Travis Air Force Base located approximately 15 miles to the southwest.

The Final PEA (Section 3.5.1) identified BMPs to reduce these adverse short term noise effects to less-than-significant levels; these conclusions remain accurate and applicable for the final proposed design of the Preferred Action Alternative.

3.7.1 Effects of the Preferred Action Alternative
During construction of the Preferred Action Alternative, noise would occur from construction vehicles entering and exiting the site associated with land preparation and grading, and from construction of buildings, roads and other infrastructure.

The most prevalent noise source at typical construction sites is the internal combustion engine. General construction equipment using engines includes, but is not limited to: heavy, medium, and light equipment such as excavators; roller compactors; front-end loaders; bulldozers; graders; backhoes; dump trucks; water trucks; concrete trucks; pump trucks; utility trucks; cranes; sheet pile drivers; man lifts; forklifts; and lube, oil, and fuel trucks.
Peak noise levels vary at a given location based on line of sight, topography, vegetation, and atmospheric conditions. In addition, peak noise levels would be variable and intermittent because each piece of equipment would only be operated when needed. However, peak construction noise levels would be considerably higher than existing noise levels. Relatively high peak noise levels in the range of 93 to 108 dBA (decibels, A-weighted scale) would occur on the active construction site, decreasing with distance from the construction areas. At 0.25 mile, construction noise levels would generally be low enough so as to be considered insignificant, although transient noise levels may be noticeable at times. Table 3 presents peak noise levels that could be expected from a range of construction equipment during proposed construction activities.

### Table 3. Peak Noise Levels Expected from Typical Construction Equipment

<table>
<thead>
<tr>
<th>Source</th>
<th>Peak Noise Level (dBA, attenuated)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Distance from Source (feet)</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Heavy Truck</td>
<td>95</td>
</tr>
<tr>
<td>Dump Truck</td>
<td>108</td>
</tr>
<tr>
<td>Concrete Mixer</td>
<td>108</td>
</tr>
<tr>
<td>Jack-Hammer</td>
<td>108</td>
</tr>
<tr>
<td>Scraper</td>
<td>93</td>
</tr>
<tr>
<td>Bulldozer</td>
<td>107</td>
</tr>
<tr>
<td>Generator</td>
<td>96</td>
</tr>
<tr>
<td>Crane</td>
<td>104</td>
</tr>
<tr>
<td>Loader</td>
<td>104</td>
</tr>
<tr>
<td>Grader</td>
<td>108</td>
</tr>
<tr>
<td>Pile Driver</td>
<td>105</td>
</tr>
<tr>
<td>Forklift</td>
<td>100</td>
</tr>
</tbody>
</table>

**Worst-Case Combined Peak Noise Level (Bulldozer, Jackhammer, Scraper)**

<table>
<thead>
<tr>
<th>Combined Peak Noise Level</th>
<th>Distance from Source (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>103</td>
</tr>
</tbody>
</table>

**Predicted Peak for M-16 Rifle Blank (dB, attenuated)**

<table>
<thead>
<tr>
<th>Peak Noise Level</th>
<th>Distance from Source (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-16 Blank</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>62</td>
</tr>
</tbody>
</table>

1Source: Tipler 1976
2VA 2013

Additionally, the National Institute of Occupational Safety and Health (NIOSH) specifies recommended sound exposure limits (RELs) to protect individuals against the health effects of exposure to hazardous conditions in the workplace. Allowable daily noise dose is expressed as a percentage and can be assessed using a 3-dB time-intensity tradeoff and is summarized as for every 3-dB increase in noise level, the allowable exposure time is reduced in half. Conversely, for every 3-dB decrease in noise level, the allowable exposure time is doubles (see Table 4).

### Table 4. Average Sound Exposure Limits Needed to Reach the Maximum Allowable Daily Dose of 100%

<table>
<thead>
<tr>
<th>Time to Reach 100% Noise Dose (hours)</th>
<th>Exposure level per NIOSH REL (dB, attenuated)</th>
</tr>
</thead>
</table>
Although noise levels would be quite loud in the immediate area, the intermittent nature of peak construction noise levels would not create the steady noise level conditions for an extended duration that exposes an individual to 100% of the noise REL, leading to hearing damage. In any case, construction workers would follow standard Federal Occupational Safety and Health Administration (OSHA) requirements to prevent hearing damage.

The primary source of noise during cemetery operation is from three to five gun salutes from rifle blank rounds during committal services and the number of salutes depends on the rank of the deceased Veteran. Phase II Project development includes one additional committal service shelter—the location where rifle salutes take place—located in the southcentral portion of the project area. Approximately six ceremonies may be performed a day, and ceremonies may take place weekdays between the normal hours of operation between 9:00 a.m. and 3:30 p.m. However, there may be instances when salutes will occur outside of normal hours of operation. Noise levels from a rifle blank ranges from 62 dB at approximately 160 feet and reduces to 27 dB at approximately 2,600 feet from the source (see Table 3).

The closest sensitive receptors to the proposed committal service shelter would be farmsteads located approximately 3,200 feet south, 3,200 feet southeast, and approximately 4,300 feet northwest from the committal service shelter. The predicted peak sound levels at these receptors would range from approximately 36 dBA, measured at 2,600 feet to 26 dBA, measured at approximately 5,200 feet (VA 2013). These levels of sound would be comparable to that of rustling leaves or a quiet conversation.

The predicted peak sound levels at these receptors do not consider the reduction in sound levels that would occur due to the presence of tree lines and vegetation that would lessen sound pressure levels experienced off-site. Therefore, while noise from committal ceremonies would be audible to sensitive receptors, actual sound levels experienced would be less than the calculated level. Although committal ceremonies involving salutes using rifle blanks would be sporadic during the day, the salutes may occur on a daily basis. As such, minor long-term, adverse noise effects would result from the Preferred Action Alternative.

In addition to effects resulting from committal ceremonies, daily cemetery operations would cause noise effects from increased local traffic, traffic during ceremonies, ongoing landscaping and grounds maintenance during normal business hours, and HVAC noise from buildings already constructed on-site. However, the additional noise generated from these operational activities would not noticeably increase noise levels at receptors beyond the Cemetery property line.

### 3.7.2 Effects of the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met. The noise levels to surrounding properties would not change from current cemetery operations. No adverse noise effects presently occur. The noise environment of the site would not be altered by activities of
VA; however, the likely ultimate development of the Phase II Project area by others would produce similar (or greater) construction and operation noise effects as those identified under the Preferred Action Alternative.

3.7.3 Minimization/Management Measures

Implementing BMPs to reduce noise generated during construction would further minimize the potential effects on the local noise environment. No project specific minimization measures may be required; however, the construction contractor would implement the following typical noise control BMPs, as applicable, to minimize the potential for adverse, short-term noise effects. These measures would be briefed to the contractor at the construction kick-off meeting, and daily at tailgate safety meetings. The on-site construction manager would be responsible for address any noise issues that may arise.

- Abide by VA project requirements that limits hours of the day in which construction equipment can be used;
- Minimize night time construction;
- Ensure all equipment with internal combustion engines are properly outfitted with mufflers per Dixon city ordinance;
- Coordinate proposed construction activities in advance with adjacent sensitive receptors. Let the local residents know what operations would be occurring at what times, including when they would start and when they would finish each day. Post signage, updated daily, at the entry points of the site providing current construction information, including schedule and activity;
- Limit, to the extent possible, construction and associated heavy truck traffic to occur between 7:00 a.m. and 7:00 p.m. on Monday through Friday, or during normal, weekday, work hours. This measure would reduce noise effects during sensitive night-time hours;
- Locate stationary equipment as far away from sensitive receptors as possible;
- Select material transportation routes as far away from sensitive receptors as possible;
- Shut down noise-generating heavy equipment when it is not needed;
- Maintain noisy equipment per manufacturer’s recommendations; and
- Encourage construction personnel to operate equipment in the quietest manner practicable (e.g., speed restrictions, retarder brake restrictions, engine speed restrictions, etc.).

During operation of the National Cemetery, salutes using rifle blanks during committal services would generate minor short-term, adverse noise effects. The following management measures would be performed to further reduce operational noise effects to nearby residential receptors.

- Limit the salutes using rifle blanks during committal ceremonies during normal operating hours of 9:00 AM to 3:30 PM. However, there may be instances when salutes will be carried out outside of normal hours of operation.

Implementation of these BMPs would reduce the potential for short-term adverse noise effects to acceptable levels, notably for nearby sensitive receptors (i.e., the residential area northeast of the site).
3.8 Land Use

The Preferred Action area is designated for cemetery use, and is currently undeveloped open land. The land adjacent to the east is developed VA National Cemetery. The site is bound by waterways to the east and south and Midway Road to the north. The existing uses of land surrounding the proposed expansion is cropped agriculture.

3.8.1 Preferred Action Alternative

Construction of a National Cemetery Phase II Project area, the Preferred Action Alternative, would have a less-than-significant effect on land use. The entire site is currently zoned Exclusive Agricultural (A-40) (Figure H). Cemeteries are accounted for in the local zoning regulations under Special Permitted Use, however, the VA as a federal agency, is not subject to local zoning regulations.

Currently, no rezoning or development plans exist in the surrounding area for commercial/light industrial development. Much of the surrounding area remains in agricultural use. The potential adverse land use effects would be less-than-significant.
Figure H. Site Zoning Map for Sacramento Valley National Cemetery
3.8.2 Effects of the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met. No land use effects would occur. The Phase II Project area would remain agricultural and be clear to be developed as designated above, following local zoning ordinances documented in Section 3.8.

3.8.3 Minimization/Management Measures

No project-specific minimization or management measures are required.

3.9 Floodplains and Wetlands

Executive Order 11988 and the floodplain management criteria contained in 44 CFR Part 60, Criteria for Land Management and Use, requires that long-term and short-term adverse effects associated with occupancy and modification of floodplains be avoided to the greatest extent possible. Floodplains are those areas that have been delineated by the Federal Emergency Management Agency (FEMA) and identified on the Flood Insurance Rate Maps, as occurring in either the 100-year and/or 500-year floodplain.

Jurisdictional Waters of the United States, including streams and wetlands, are defined by 33 CFR Part 328.3 and are protected by Section 404 of the Clean Water Act (33 USC 1344), which is administered and enforced by the USACE.

Marcus H. Bole and Associates completed a wetland determination for the proposed Phase II Project area dated January 31, 2018 (see Appendix C). Presence of wetlands and other areas subject to the possible regulatory authority of the USACE were investigated within the Site. The location of these surface water features, Sweeney Creek and McCune Creek are identified in Figures I and J.
Figure I. Site FEMA/Waterways Map of Sacramento Valley National Cemetery
Figure J. National Wetland Inventory for the Proposed Sacramento Valley National Cemetery
3.9.1 Wetlands
As described in the wetland determination report, there are no mapped wetlands located on the site. The Phase II Project area is bounded by Sweeney Creek to the south and McCune Creek to the east (Figure J). The two creeks contain water for most of the year and fall under jurisdiction of the United States Army Corps of Engineers (USACE) and the CDFW. The Weyland Canal flows along the northern border of the Cemetery on the south side of Midway Road. The Kilkenny Canal, enters the Cemetery property at the northwest corner, approaches Sweeney Creek and then continues underground just south of the confluence of the two creeks.

3.9.2 Floodplains
The small floodplain areas surrounding both Sweeney Creek and McCune Creek are mapped as Zone AE on the 2012 FEMA Floodplain Map (Figure I).

3.9.3 Coastal Zone
The Coastal Zone Management Act (CZMA) was promulgated to control nonpoint pollution sources that affect coastal water quality. The CZMA of 1990, as amended (16 USC 1451 et seq.) encourages States to preserve, protect, develop, and where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife using those habitats. The proposed Phase II Project area is not located within a designated coastal zone (NOAA 2012).

3.9.4 Best Management Practices
During site development construction activities, appropriate BMPs will be implemented as required by applicable Federal, State and local rules and regulations, to minimize potential water quality effects from construction activities.

3.9.5 Effects of the Preferred Action Alternative
Development of the proposed area may alter site surface water drainages depending on grading and site design. The site design should consider drainage pathways and seeps to minimize development in wet areas or drainage channels. Water quality will improve at the Site from the existing agricultural runoff due to design considerations and NPDES requirements. The Federal Clean Water Act, Safe Drinking Water Act, and Endangered Species Act direct project proponents to improve stormwater quality and protect watersheds, rivers, streams, and drinking water resources.

Coordination with the USACE and CalEPA would be required to initiate appropriate permitting with regards to the Clean Water Act 401/404 permits, and Cal EPA with regards to the NPDES permit.

Site development would include necessary stormwater management features to adequately route, store and treat stormwater following the State of California NPDES requirements and will incorporate other state and local programs as appropriate.

3.9.6 Effects of the No-Action Alternative
Under the No-Action Alternative the purpose and need will not be met. No expansion of a National Cemetery would occur, resulting in no effects to water resources. Should the site remain agricultural land, future problems may occur with soil erosion and sediment. Should the Site ultimately be developed for another use, effects would result from that new development, and would depend upon the nature of the development.
3.9.7 Minimization/Management Measures:
VA would implement the following minimization (if necessary), avoidance, and management measures to reduce potential adverse effects to floodplain to acceptable, less-than-significant levels as part of the Final Environmental Assessment, concurrent with the site design efforts.

To minimize the potential adverse effects to wetlands and floodplains, the design has considered the following:

- Avoidance of floodplains and Waters of the United States, where possible;
- Maintain a buffer of undisturbed land around the identified Waters of the United States;
- Obtain any necessary permits from appropriate agencies; and
- Inspect and maintain construction vehicles in good working order and maintain a spill kit.

In addition to further minimize potential adverse effects to the Site, the design would implement the BMPs indicated in Table 5.

Consideration and possible implementation of these minimization measures and BMPs would ensure identified wetlands and floodplains effects are maintained at less-than-significant levels.

3.10 Solid and Hazardous Materials
As the Phase II Project area currently consists of row crop agricultural land use and no buildings are currently present, no significant asbestos, lead paint or hazardous materials issues related to the proposed Phase II Project were identified.

A full Phase I Environmental Site Assessment to fulfill the “all appropriate inquires” rule of the US Environmental Protection Agency (EPA, 2014) was not performed for this NEPA analysis because there is no transfer of land associated with the proposed action. A limited Phase II Environmental Site Assessment was performed for the site in 2002 by URS. It was recommended that the NCA consult with a hydrogeologist prior to designing any irrigation wells to avoid possibly drawing potential contaminants towards the site.

The California State Water Resources Control Board maintains a website (geotracker.waterboards.ca.gov) with comprehensive Leaking Underground Storage Tank (LUST), spills, leaks, investigations, and cleanups (SLIC) database. A review of public records indicated no cleanup sites or permitted facilities within the Phase II Project area.

Three cleanup site database listings were identified within 0.25 mile of the Phase II Project area; however, all listings were associated with 7300 Chevron Way address, located northwest and immediately adjacent to the Cemetery. The three database listings include Department of Toxic Substances EnviroStor and two listings in State Water Resources Control Board GeoTracker, and a summary of database information follows:

- EnviroStor – D K Dixon is a permitted waste oil and antifreeze transfer station and was cited with a Consent Order and Enforcement and Settlement action in December 2016 for improper management and documentation of hazardous and ignitable waste transfers.
• GeoTracker – B.C. Stocking Systems/B.C. Stocking Distribution has documented LUST releases to soil and groundwater. Potential contaminate of concern include chlorinated/halogenated hydrocarbons, diesel, gasoline, waste oil, and moto/hydraulic oil.

3.10.1 Effects of the Preferred Action Alternative

Development of the Phase II Project area would produce only temporary effects relating to solid or hazardous materials and no adverse long-term effects are anticipated. Minor potential effects may include wastes from vehicle operating fluids such as oil, diesel, gasoline, and anti-freeze from construction equipment and vehicles at the site during the initial construction phase. No significant long-term effects would occur during the operation of the cemetery, as all solid and hazardous materials will be managed in accordance with Federal and State regulations.

3.10.2 Effects of the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met. There would be no effects relating to solid or hazardous materials on the site, as the National Cemetery would not be expanded. Future development not related to a cemetery may affect if solid or hazardous materials are a danger at the site, inherently depends on the type of activity or development that would take place.

3.10.3 Minimization/Management Measures

Management of any short-term adverse effects including releases would be addressed immediately through implementation of a Site Safety Spill Prevention Plan that would have been developed before construction commenced. No significant long-term effects would result from solid or hazardous materials. BMPs that would be adhered to include standard operating procedures and applicable Federal and State laws governing the use of solid and hazardous materials used during construction. Any hazardous materials that were necessary during construction would be stored in an area designated for such materials. If hazardous materials such as maintenance fuels or fuels related to construction were released during construction, Federal and State laws would be put into practice for response and cleanup. Other fuels and liquids related to cemetery maintenance and located in the maintenance building would be stored appropriately in a locked cabinet.

3.11 Transportation and Parking

The Final PEA (Section 3.5.9) described the transportation and parking characteristics at and in vicinity of the site. Based on this analysis, the Preferred Action Alternative would not likely produce significant adverse effects to transportation and parking. There is currently a dirt two-track road accessing the proposed Phase II Project area.

3.11.1 Effects of the Preferred Action Alternative

The Final PEA (Section 3.5.9) concludes that there will be no significant effects to transportation or parking. Based on the final Phase II Project design, the Preferred Action Alternative would include an access from the adjacent existing National Cemetery. Additionally, a one-lane rural access route for SCWA maintenance vehicles would be constructed and maintained on the southern portion of the Phase II Project area, accessible from Midway Road.
During construction, increased traffic would consist of trucks, workers’ personal vehicles, and construction equipment. Installation and connection of utilities could also impact local roadways through the potential need for lane closures around the area. Based on the current traffic volumes listed for the roadways around the site, the likely increase in construction traffic volumes during morning and evening peak travel periods, as well as potential delays/rerouting caused by utility work in the local area, could result in minor short term, adverse effects on local residents’ travel or degradation of road quality.

During operation of the National Cemetery, visitors travel at various times during the day during daylight hours, likely outside of peak travel times. Staff at the National Cemetery commute to and from work during peak travel hours (i.e., at 8 a.m. and 5 p.m.). Funeral processions may have periodic, short-term traffic effects at peak times.

No parking effects are anticipated. The current National Cemetery and the proposed expansion area are and will be designed and constructed to accommodate all parking on-site.

3.11.2 Effects of the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met. There would be no changes to transportation and parking issues related to the proposed Phase II Project area. However, should the site ultimately be developed by others, effects similar or greater to those identified under the Preferred Action Alternative could occur. The type and magnitude of transportation effects would inherently depend upon the alternate development.

3.11.3 Minimization/Management Measures:

Implementing BMPs to reduce transportation effects would further minimize the potential adverse effects on local roadways. As part of the Preferred Action Alternative, transportation effects would be maintained at acceptable levels through implementation of the following BMPs:

- Coordinate with Solano County to identify and implement roadway improvements, as necessary;
- Ensure debris and/or soil is not deposited on local roadways during the construction period;
- Ensure construction activities do not adversely affect traffic flow on local roadways; construction would be timed to avoid peak travel hours; and
- VA would coordinate with Solano County to ensure that construction and operational traffic are considered in the planning of any future transportation improvements in this vicinity.

Implementation of these BMPs would ensure transportation effects are maintained at less-than-significant levels by properly controlling and limiting effects to local traffic and transportation infrastructure during construction and operation.

3.12 Cumulative Impacts

As defined by CEQ Regulations in 40 CFR Part 1508.7, cumulative impacts are those which “result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions, without regard to the agency (Federal or non-Federal) or individual who undertakes such other actions.”
Cumulative impact analysis captures the effects that result from the Proposed Action in combination with the effects of other actions taken during the duration of the Proposed Action in the same geographic area. Due to extensive influences of multiple forces, cumulative effects are the most difficult to analyze.

NEPA requires the analysis of cumulative environmental effects of a Proposed Action, or set of actions, on resources that may often be manifested only at the cumulative level, such as traffic congestion, air quality, noise, biological resources, cultural resources, socioeconomic conditions, utility system capacities, and others.

The Phase II Project area is situated in a predominantly agricultural area, south of Midway Road in Solano County, California, and is currently developed as cultivated agricultural land use.

The area adjoining to the north beyond Midway Road is currently unimproved agricultural and a farmstead. The area adjoining to the east is currently the existing Sacramento Valley National Cemetery. The area adjoining to the south, beyond Sweeney Creek, is currently unimproved agricultural land and farmsteads. The area adjoining to the west is currently unimproved agricultural land and the existing cemetery maintenance facility.

3.12.1 Considered Cumulative Actions

The Preferred Action Alternative would retain many of the current features at the site, while preserving natural resources through environmentally sensitive development. The Preferred Action Alternative is generally consistent with surrounding land uses, and as such would not produce and cumulative land use effects in the area.

Under the No-Action Alternative, cumulative impacts would be similar to those identified for the Preferred Action, as the No-Action Alternative Site would likely be developed for another use. The extent of cumulative effects under the No-Action Alternative would depend upon that future use.

3.12.2 Effects of Cumulative Actions Under the Preferred Action Alternative

Should unanticipated projects be developed in the surrounding area during the lifetime of the Proposed Action, cumulative impacts may result. No planned Federal or other large projects in the vicinity of the Project are known at the time of this assessment. As described throughout Section 3, potential adverse effects associated with the Proposed Action were all minor. These included potential minor effects to aesthetics (short-term); air quality (short-term); soils (short- and long-term); water resources (short- and long-term); wildlife and habitat (short- and long-term); noise (short- and long-term); solid and hazardous materials (short- and long-term); and transportation and parking (short- and long-term). These potential effects are reduced through careful coordination and implementation of general BMPs, avoidance and management measures, and compliance with regulatory requirements as identified throughout Section 3 and summarized in Section 5, Table 5. Given the nature of the Preferred Action Alternative, and the lack of other nearby Federal projects, no significant cumulative adverse effects to any reviewed resource areas are anticipated.

Close coordination between the Federal, State, and local representatives would serve to manage and control any potential cumulative environmental effects within the region, including managing regional transportation increases with adequate infrastructure. Implementation of land use and resource management plans would serve to control the extent of adverse environmental effects,
and proper planning would ensure future socioeconomic conditions maintain, if not improve, the local standard of living. Implementation of effective resource management plans and programs should minimize or eliminate any potential cumulative degradation of the natural ecosystem.

### 3.12.3 Effects of Cumulative Actions Under the No-Action Alternative

Under the No-Action Alternative the purpose and need would not be met. Adverse cumulative effects from other future development of the Cemetery could be greater than under the Preferred Action Alternative, but would inherently depend on the type, nature, and extent of future development and use. Without implementation of the Preferred Action Alternative, the existing property would remain in its current land use. Failure to implement the Proposed Action would result in a regional, potentially significant, adverse cumulative socioeconomic effect on those Veterans in the north central California area. Specifically, VA would not be able to provide these Veterans with a suitable, relatively local National Cemetery for proper burial. These Veterans would be required to use another National Cemetery, if available, or another burial option, and possibly would not be able to exercise the earned benefit of no-cost burial at a National Cemetery. Due to the speculative nature of proposed future Site development under the No-Action Alternative, a detailed cumulative effects analysis is not feasible.

### 3.13 Potential for Generating Substantial Controversy

As discussed in Section 4.0, VA has solicited input from various Federal, State, and local government agencies regarding the Proposed Action. During the EA process, one agency, the California State Historic Preservation Office provided input; the input did not identify opposition or controversy related to the proposed expansion of Sacramento Valley National Cemetery.

Additionally, the planned development of the Site would occur in a manner consistent with local zoning and local plans. It is not anticipated that there would be substantial public controversy regarding the Preferred Action Alternative.

It is not anticipated that there will be substantial public controversy regarding the Preferred Action Alternative based on any of the less-than-significant effects described in this SEA and responses during the Final SEA 30-day public involvement period. Any public comments resulting from this 30-day period will be addressed as part of this SEA.
Section 4.0 Public Involvement

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. Additional guidance is provided in the VA’s NEPA Interim Guidance for Projects (VA 2010). Consideration of the views and information of all interested persons promotes open communication and enables better decision making. Agencies, organizations, and members of the public with a potential interest in the Proposed Action, such as area residents, interested organizations, disadvantaged persons, are urged to participate. A record of agency coordination and public involvement associated with the EA is provided in Appendices A and D respectively.

4.1 Public Involvement

VA, as the Federal proponent of this Proposed Action, will publish and distribute this draft SEA for at least a 30-day public comment period on the draft SEA, which will start with the publication of a Notice of Availability (NOA) in local newspapers. Copies of the draft EA will be available through the VA’s website at http://www.cem.va.gov/cem/EA.asp . VA will also submit a draft SEA to interested agencies for comment concurrent with the public comment period.

4.2 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. As part of the NEPA Process (42 USC 4331 Section 102), several public agencies were consulted to provide preliminary input on potential environmental effects on resources under their jurisdiction within the Proposed Action area, and provide any relevant information. Below is a list of agencies contacted as part this SEA. In addition, a sample of the scoping letter, the contact information and the scoping comments from the agencies are contained in Appendix A.

Federal Agencies
- US Army Corps of Engineers, Sacramento District
- US Department of Agriculture – Natural Resources Conservation Service
- US Fish and Wildlife Service
- US Department of the Interior, Bureau of Reclamation
- United States Airforce, Travis Air Force Base, Public Affairs Office

State Agencies
- California Office of Historic Preservation
- California Department of Conservation, Division of Mines and Geology
- California Environmental Protection Agency
- California Regional Water Quality Control Board - Central Valley Region
- California Department of Water Resources, Environmental Services Office
- California Natural Resources Agency
- California Department of Fish & Game, Bay Delta Region
- California Department of Veterans Affairs, Public Affairs Office
- California Energy Commission, Media and Public Communications Office
- Western Area Power Administration, Sierra Nevada Region
- California Department of Pesticide Regulation
- California State Land Commission
Local Agencies
Solano Irrigation District
Solano County Department of Environmental Management, Planning Services
Solano County Water Agency
Yolo-Solano Air Quality Management District
Sonoma State University, Northwest Information Center
North Central Information Center, Department of Anthropology, California State University, Sacramento

4.3 Native American and Section 106 NHPA Consultation
In accordance to Section 106 of NHPA, EO 13175 and the Native American Graves Protection and Repatriation Act, VA sent letters during the EA process asking for input to Federally recognized tribes in the region that may attach religious or cultural significance to the property affected by the Proposed Action. Two Native American Tribes with possible ancestral ties to the Proposed Action’s project area were contacted based on review of the Native American Consultation Database from the United States Department of Interior National Parks Service, and included Cortina Indian Ranchers of Wintun Indians (Williams, CA) and Yocha Dehe Wintun Nation (Brooks, CA). A letter was sent to each of the Tribes and no responses were received. A second round of letters was sent to the two Tribes in the region and no response was received (see Appendix B).

Additionally, in accordance with Section 106 of the NHPA and 36 CFR Part 800, VA started consultation with the SHPO, California Office of Historic Preservation. During the PEA process, the SHPO indicated that there are no records of historic resources or historic resources surveys for the project site (See Appendix A for correspondence). It was recommended that the site be inspected by a qualified archeologist to determine if any unreported sites will be affected.

A Cultural Resources File Search and Archeological Survey of the site were completed in December of 2017 by Sean Michael Jensen, M.A. of Genesis Society. It was concluded that no historical properties will be affected by the project (See Appendix B).
Section 5.0 Management and Minimization Measures

This section summarizes the management and minimization measures, if any, identified in Section 3 that are proposed to reduce and avoid potential adverse effects of the Preferred Action Alternative. In addition, any unforeseen adverse cumulative effects would be offset or minimized through consultation and compliance with statutory and regulatory processes already in place in the State of California. Section 11.0 includes a list of regulations and environmental permits that would apply to the Proposed Action.

Anticipated avoidance, minimization, and management measures for the Preferred Action, based on the analysis in this SEA, are presented below and are summarized in Table 5. “Management measures” are defined as routine BMPs and/or regulatory compliance measures that are regularly implemented as part of proposed activities, as appropriate, across California. Per established protocols, procedures, and requirements, VA (and VA’s design and construction contractors) would implement BMPs and would satisfy all applicable regulatory requirements in association with the design, construction, and operation of the Preferred Action.

In general, implementation of management measures, as identified in Table 5, would maintain effects at acceptable levels for all resource areas analyzed. These are different from “minimization measures,” which are defined as project specific requirements, not routinely implemented as part of development projects; necessary to reduce identified potentially significant adverse environmental effects to less-than-significant levels.

Table 5 provides a summary of potential BMPs/Environmental Protection Measures which could be incorporated in the Proposed Action to ensure potential adverse, minor effects are controlled and/or further reduced.

Table 5. Best Management Practices/Minimization Measures Incorporated into the Proposed Action

<table>
<thead>
<tr>
<th>Technical Resource Area</th>
<th>Best Management Practice/Environmental Protection Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aesthetics</strong></td>
<td>Incorporate existing large trees into the cemetery design wherever possible</td>
</tr>
<tr>
<td></td>
<td>Maintain and add trees to the existing tree-lined Site perimeter to obstruct views of construction</td>
</tr>
<tr>
<td></td>
<td>Create and routinely maintain landscaped areas, buildings, roadways, and signage</td>
</tr>
<tr>
<td></td>
<td>Implement the construction-related BMPs for dust control described for Air Quality below</td>
</tr>
<tr>
<td><strong>Air Quality</strong></td>
<td>Use appropriate dust suppression methods during on-site construction activities. Available methods include application of water, dust palliative, or soil stabilizers; use of enclosures, covers, silt fences, or wheel washers; and suspension of earth-moving activities during high wind conditions</td>
</tr>
<tr>
<td></td>
<td>Maintain an appropriate speed to minimize dust generated by vehicles and equipment on unpaved surfaces</td>
</tr>
<tr>
<td></td>
<td>Cover haul trucks with tarps</td>
</tr>
<tr>
<td></td>
<td>Stabilize previously disturbed areas through re-vegetation or mulching if the area would be inactive for several weeks or longer</td>
</tr>
<tr>
<td>Technical Resource Area</td>
<td>Best Management Practice/Environmental Protection Measure</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Visually monitor all construction activities regularly, particularly during extended periods of dry weather, and implement dust control measures when appropriate</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>Cease work and contact a qualified archeologist, the California SHPO in the event that human remains or items of cultural significance are found</td>
</tr>
<tr>
<td>Geology, Topography, and Soils</td>
<td>Maintain areas of the site for agricultural use (via lease) until the cemetery development phase is needed</td>
</tr>
<tr>
<td></td>
<td>Design the proposed cemetery in concert with the natural topography and current drainage patterns</td>
</tr>
<tr>
<td></td>
<td>Design paved areas to drain to a suitable, site-specific, and properly engineered and designed stormwater management system</td>
</tr>
<tr>
<td></td>
<td>Install and monitor erosion prevention measures, such as silt fences and water breaks, detention basins, filter fences, sediment berms, interceptor ditches, straw bales, rip-rap, and/or other sediment control structures; spread stockpiled topsoil; and seed/re-vegetate areas temporarily cleared of vegetation</td>
</tr>
<tr>
<td></td>
<td>Retain on-site vegetation to the maximum extent possible</td>
</tr>
<tr>
<td></td>
<td>Plant and maintain soil stabilizing vegetation on disturbed areas</td>
</tr>
<tr>
<td></td>
<td>Use native vegetation to re-vegetate disturbed soils</td>
</tr>
<tr>
<td>Hydrology and Water Quality</td>
<td>Implement Stormwater Management Facilities and other related stormwater management infrastructure for the Site</td>
</tr>
<tr>
<td></td>
<td>Prepare and implement a Stormwater Pollution Prevention Plan</td>
</tr>
<tr>
<td></td>
<td>Develop a site design that prevents surface water runoff to the on-site and adjacent surface waters, and avoids interaction with on-site and adjacent surface waters</td>
</tr>
<tr>
<td>Wildlife and Habitat</td>
<td>Construction tree clearing and grading should be timed to avoid nesting periods of migratory birds on the Site, which are protected under the Migratory Bird Treaty Act. This Act prohibits the taking of migratory birds, their nests, and eggs. Thus, it is recommended that tree removal and grading at the Site be conducted outside the migratory bird nesting seasons of April through July so that actively occupied nests in trees, shrubs and at ground level are not disturbed. If it is not practical to clear the Site outside of this time frame, a qualified biologist should survey the Site prior to clearing to ensure that no active nests are disturbed</td>
</tr>
<tr>
<td></td>
<td>Native species would be used to the extent practicable when re-vegetating land disturbed by construction to avoid the potential introduction of non-native or invasive species</td>
</tr>
<tr>
<td>Noise</td>
<td>Coordinate proposed construction activities in advance with adjacent sensitive receptors (residents). Let the local residents know what operations would be occurring at what times, including when operations would start and when they would finish each day. Post signage, updated daily, at the entry points of the site provide current construction information, including schedule and activity</td>
</tr>
<tr>
<td></td>
<td>Limit, to the extent possible, construction and associated heavy truck traffic to occur between 7:00 a.m. and 7:00 p.m. during normal, weekday work hours. Work on the weekend may be required, as dictated by the construction schedule. This measure would reduce noise effects during sensitive nighttime hours.</td>
</tr>
<tr>
<td></td>
<td>Locate stationary equipment as far away from sensitive receptors as possible</td>
</tr>
<tr>
<td></td>
<td>Select material transportation routes as far away from sensitive receptors as possible</td>
</tr>
<tr>
<td></td>
<td>Shut down noise generating heavy equipment when it is not needed</td>
</tr>
<tr>
<td></td>
<td>Maintain noisy equipment per manufacturer’s recommendations</td>
</tr>
<tr>
<td>Technical Resource Area</td>
<td>Best Management Practice/Environmental Protection Measure</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Encourage construction personnel to operate equipment in the quietest manner practicable (e.g., speed restrictions, retarder brake restrictions, engine speed restrictions, etc.)</td>
</tr>
<tr>
<td></td>
<td>Limit rifle salute noise effects from ceremonial rifle salutes by conducting salutes away from the site boundaries (near residential receptors) and limit salutes to normal daytime hours between 9:00 AM and 3:30 PM. However, there may be infrequent instances when salutes will be carried out outside of normal hours of operation.</td>
</tr>
<tr>
<td>Land Use</td>
<td>No project specific BMP measures are required</td>
</tr>
<tr>
<td>Floodplains and Wetlands</td>
<td>Maintain a buffer of undisturbed land around the identified Waters of the US where possible</td>
</tr>
<tr>
<td></td>
<td>Develop a site design that avoids on-site and adjacent surface waters and floodplains to the maximum extent possible</td>
</tr>
<tr>
<td></td>
<td>Coordinate with the Army Corps of Engineers and Solano County Irrigation District as needed</td>
</tr>
<tr>
<td>Solid and Hazardous Materials</td>
<td>Comply with existing Standard Operating Procedures and applicable Federal and State laws governing the use, generation, storage, or transportation of solid or hazardous materials</td>
</tr>
<tr>
<td></td>
<td>Avoid or limit the use of hazardous materials, including building material products, during construction and operation of the National Cemetery. If hazardous materials are required during construction and/or operation of the National Cemetery, store in locations designated for hazardous materials (locked and labeled metal cabinets)</td>
</tr>
<tr>
<td></td>
<td>If hazardous substances are released to the Site during construction or operation, these applicable Federal and State requirements must be followed in response and cleanup</td>
</tr>
<tr>
<td>Transportation and Parking</td>
<td>Coordinate with the Solano County to ensure that construction and operational traffic are considered in the planning of future transportation improvements in this vicinity</td>
</tr>
<tr>
<td></td>
<td>Work with Solano County to identify and implement roadway improvements, as necessary, such as turn lanes and signals</td>
</tr>
<tr>
<td></td>
<td>Ensure debris and/or soil is not deposited on local roadways during the construction period</td>
</tr>
<tr>
<td></td>
<td>Ensure construction activities do not adversely affect traffic flow on local roadways; construction would be timed to avoid peak travel hours</td>
</tr>
</tbody>
</table>

5.1 Management and Minimization Measures

With implementation of routine “management measures,” the Preferred Action Alternative would not result in significant adverse effects to the current environmental setting associated with any of the technical resource areas.

5.2 Design Avoidance and Minimization Measures

VA would implement the following design avoidance measures to reduce potential effects to the Waters of the US (Sweeney Creek and McCune Creek) to acceptable, less-than-significant levels.
Waters of the US. Avoid adjacent surface water resources to the greatest extent possible during the site design process. Consult with and obtain permits, as necessary, from the USACE under Section 404 and CalEPA under Section 401 of the Clean Water Act to minimize adverse effects to jurisdictional surface water resources prior to construction. VA anticipates that final cemetery design would maintain a buffer of undisturbed land around the identified surface water resources. However, in those cases where effects to the Waters of the US cannot be avoided, if any, VA would obtain and comply with all necessary permits from State (CalEPA) and Federal (USACE) agencies.
Section 6.0 Summary and Conclusion

This SEA analyzes the potential environmental effects of VA’s Proposed Action to construct and operate the expansion of Sacramento National Cemetery in Solano County, California. As described in Section 1.2, this SEA has been "tiered" from a Final PEA prepared by VA on August 2002 (URS 2002).

This SEA evaluates two alternatives:

1) Preferred Action Alternative: construct and operate an expansion of the Sacramento Valley National Cemetery on the 90-acre site, thus meeting the purpose and need; and

2) No-Action Alternative: do not construct the proposed National Cemetery expansion and do not meet the purpose and need.

This SEA evaluates possible effects to aesthetics; air quality; cultural resources; geology, topography and soils; hydrology and water quality; wildlife and habitat; noise; land use; floodplains and wetlands; solid and hazardous materials; transportation and parking; and utilities. To date, no significant impacts have been identified in this SEA. Comments received over the course of the public involvement period will be incorporated into the Final SEA.
Section 7.0  List of Preparers

Department of Veterans Affairs Staff

Glenn Elliott
Environmental Engineer
U.S. Department of Veterans Affairs Office of Construction & Facilities Management

Anderson Engineering of Minnesota, LLC Staff

13605 1st Ave N, Suite 100
Plymouth, MN 55441

- Ben Hodapp, PWS – Sr. Environmental Specialist
- Tina Justen – Environmental Specialist
- Alex Yellick – Environmental Specialist
- Joe Aden – GIS Specialist
- Mike Brandvold, PE – Sr. Civil Engineer
- Joe Lucht, PLA – Landscape Architect

Marcus H. Bole & Associates (subcontractor to Anderson Engineering)

104 Brock Drive
Wheatland, CA 95692

- Charlene Bole – Senior Project Botanist
- Marcus Bole – Senior Wildlife Biologist

Genesis Society (subcontractor to Anderson Engineering)

7053 Molokai Drive
Paradise, CA 95969

- Sean Jensen - Archaeologist
Section 8.0 References

Bole and Associates. *Biological Resources Evaluation Sacramento Valley National Cemetery Phase 2 Expansion*. 2018a

Bole and Associates. *Delineation of Waters of the U.S. – Sacramento Valley National Cemetery Phase 2 Expansion*. 2018b

Clean Air Act of 1970 (42 USC 7401 et. seq.; 40 CFR Parts 50-87) Section 176(c).

Coastal Zone Management Act of 1990, as amended (16 USC 1451 et seq.)

Code of Federal Regulations 40 CFR 261.3

Endangered Species Act of 1973, as amended (7 USC 136; 16 USC 1531 et seq.).


Farmland Protection Policy Act (FPPA) (7 USC 4201, et seq.).

Federal Clean Air Act of 1990 (42 USC 7401 et seq., as amended).

Federal Clean Water Act (Federal Water Pollution Control Act) of 1948, as amended (1972,1977) (33 USC 1251 et seq.); Sections 401 and 404.


GeoTracker-CA State Water Resources Control Board. Accessed April 2018


Table of Predicted Peak for Rifle M-16 Blank, Target 50 Meters. March 25, 2014.


USFWS National Wetlands Inventory Online Mapper, 2014.


VA 2017. VA Facts About the National Cemetery Administration. January 2017

VA Noise from M-16 Rifle. Email March 2014.
### Section 9.0 List of Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADA</td>
<td>American with Disabilities Act</td>
</tr>
<tr>
<td>AE</td>
<td>Anderson Engineering of MN, LLC</td>
</tr>
<tr>
<td>AG</td>
<td>Agricultural Farming District</td>
</tr>
<tr>
<td>amsl</td>
<td>above mean sea level</td>
</tr>
<tr>
<td>AQCR</td>
<td>Air Quality Control Regions</td>
</tr>
<tr>
<td>AQMD</td>
<td>Air Quality Management District</td>
</tr>
<tr>
<td>BMP</td>
<td>Best Management Practice</td>
</tr>
<tr>
<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
</tr>
<tr>
<td>CDFG</td>
<td>California Department of Fish and Game</td>
</tr>
<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CO</td>
<td>Carbon Monoxide</td>
</tr>
<tr>
<td>CSS</td>
<td>committal service shelters</td>
</tr>
<tr>
<td>CZMA</td>
<td>Coastal Zone Management Act</td>
</tr>
<tr>
<td>DB</td>
<td>Design-Build</td>
</tr>
<tr>
<td>dBA</td>
<td>decibels, A-weighted scale</td>
</tr>
<tr>
<td>EISA</td>
<td>Energy Independence Security Act</td>
</tr>
<tr>
<td>EPAct</td>
<td>Energy Policy Act</td>
</tr>
<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>FONSI</td>
<td>Finding of No Significant Impact</td>
</tr>
<tr>
<td>FPPA</td>
<td>Farmland Protection Policy Act</td>
</tr>
<tr>
<td>GPD</td>
<td>gallons per day</td>
</tr>
<tr>
<td>GI</td>
<td>Green Infrastructure</td>
</tr>
<tr>
<td>HDPE</td>
<td>High-Density Polyethylene</td>
</tr>
<tr>
<td>HVAC</td>
<td>heating, ventilation, and cooling</td>
</tr>
<tr>
<td>LID</td>
<td>Low-Impact Development</td>
</tr>
<tr>
<td>LOS</td>
<td>Level of Service</td>
</tr>
<tr>
<td>LUST</td>
<td>Leaking Underground Storage Tank</td>
</tr>
<tr>
<td>MIA</td>
<td>Missing in Action</td>
</tr>
<tr>
<td>MG</td>
<td>million gallons</td>
</tr>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
</tr>
<tr>
<td>NAHC</td>
<td>Native American Heritage Commission</td>
</tr>
<tr>
<td>NCA</td>
<td>National Cemetery Administration</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Policy Act of 1969</td>
</tr>
<tr>
<td>NHPA</td>
<td>National Historic Preservation Act</td>
</tr>
<tr>
<td>NO2</td>
<td>Nitrogen Dioxide</td>
</tr>
<tr>
<td>NOA</td>
<td>Notice of Availability</td>
</tr>
<tr>
<td>NOAA</td>
<td>National Oceanic &amp; Atmospheric Administration</td>
</tr>
<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NRCS</td>
<td>Natural Resources Conservation Service</td>
</tr>
<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
</tr>
<tr>
<td>O3</td>
<td>Ozone</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>Pb</td>
<td>Lead</td>
</tr>
<tr>
<td>PEA</td>
<td>Programmatic Environmental Assessment</td>
</tr>
<tr>
<td>PM2.5</td>
<td>Particulate Matter</td>
</tr>
<tr>
<td>PG&amp;E</td>
<td>Pacific Gas &amp; Electric</td>
</tr>
<tr>
<td>PIC</td>
<td>Public Information Center</td>
</tr>
<tr>
<td>POW</td>
<td>Prisoner of War</td>
</tr>
<tr>
<td>RECs</td>
<td>Recognized Environmental Conditions</td>
</tr>
<tr>
<td>ROI</td>
<td>Region of Influence</td>
</tr>
<tr>
<td>SCWA</td>
<td>Solano County Water Agency</td>
</tr>
<tr>
<td>SEA</td>
<td>Site-Specific Environmental Assessment</td>
</tr>
<tr>
<td>SHPO</td>
<td>State Historic Preservation Office</td>
</tr>
<tr>
<td>SID</td>
<td>Solano Irrigation District</td>
</tr>
<tr>
<td>SLIC</td>
<td>spills, leaks, investigations, and cleanups</td>
</tr>
<tr>
<td>SO2</td>
<td>Sulfur Dioxide</td>
</tr>
<tr>
<td>SWMF</td>
<td>Stormwater Management Facilities</td>
</tr>
<tr>
<td>TIS</td>
<td>Traffic Impact Study</td>
</tr>
<tr>
<td>TGI</td>
<td>Thiele Geotech, Inc.</td>
</tr>
<tr>
<td>URS</td>
<td>URS Corporation</td>
</tr>
<tr>
<td>USACE</td>
<td>US Army Corps of Engineers</td>
</tr>
<tr>
<td>USC</td>
<td>United States Code</td>
</tr>
<tr>
<td>USEPA</td>
<td>United States Environmental Protection Agency</td>
</tr>
<tr>
<td>USFWS</td>
<td>US Fish and Wildlife Service</td>
</tr>
<tr>
<td>VA</td>
<td>Department of Veteran Affairs</td>
</tr>
<tr>
<td>vpd</td>
<td>vehicles per day</td>
</tr>
</tbody>
</table>
## Section 10.0 List of Agencies and Persons Consulted

<table>
<thead>
<tr>
<th>Agency</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Army Corps of Engineers, Sacramento District</td>
<td>1325 J Street - Room 1513</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95814</td>
</tr>
<tr>
<td>US Department of Agriculture – Natural Resources Conservation Service</td>
<td>1170 N Lincoln</td>
</tr>
<tr>
<td></td>
<td>Suite 110</td>
</tr>
<tr>
<td></td>
<td>Dixon, California 95620</td>
</tr>
<tr>
<td>US Fish and Wildlife Service</td>
<td>W2065 2800 Cottage Way</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95825</td>
</tr>
<tr>
<td>US Department of the Interior, Bureau of Reclamation</td>
<td>3310 El Camino Ave, Room 300</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95821</td>
</tr>
<tr>
<td>United States Airforce, Travis Air Force Base, Public Affairs office</td>
<td>400 Brennan Circle</td>
</tr>
<tr>
<td></td>
<td>Travis AFB, California 94535</td>
</tr>
<tr>
<td>California Department of Conservation, Division of Mines and Geology</td>
<td>801 K Street, MS 12-30</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95814</td>
</tr>
<tr>
<td>California Environmental Protection Agency</td>
<td>8800 Cal Center Drive</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95826-3200</td>
</tr>
<tr>
<td>California Regional Water Quality Control Board - Central Valley Region</td>
<td>11020 Sun Center Drive, #200</td>
</tr>
<tr>
<td></td>
<td>Rancho Cordova, CA 95670-6114</td>
</tr>
<tr>
<td>California Department of Water Resources, Environmental Services Office</td>
<td>1416 Ninth Street</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95814-5515</td>
</tr>
<tr>
<td>California Natural Resources Agency</td>
<td>1416 Ninth Street</td>
</tr>
<tr>
<td></td>
<td>Suite 1311</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95814</td>
</tr>
<tr>
<td>California Department of Fish &amp; Game, Bay Delta Region</td>
<td>7329 Silverado Trail</td>
</tr>
<tr>
<td></td>
<td>Napa, California 94558</td>
</tr>
<tr>
<td>California Department of Veterans Affairs, Public Affairs Office</td>
<td>1227 O Street</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95814-5840</td>
</tr>
<tr>
<td>California Energy Commission, Media and Public Communications Office</td>
<td>1516 Ninth Street</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95814-5512</td>
</tr>
<tr>
<td>Western Area Power Administration, Sierra Nevada Region</td>
<td>114 Parkshore Dr.</td>
</tr>
<tr>
<td></td>
<td>Folsom, California 95630</td>
</tr>
<tr>
<td>California Department of Pesticide Regulation</td>
<td>1001 I Street</td>
</tr>
<tr>
<td></td>
<td>PO Box 4015</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95812</td>
</tr>
<tr>
<td>California State Land Commission</td>
<td>100 Howe Ave, Suite 100 South</td>
</tr>
<tr>
<td></td>
<td>Sacramento, California 95825</td>
</tr>
<tr>
<td>Agency</td>
<td>Contact Information</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Solano Irrigation District</td>
<td>810 Vaca Valley Parkway, Suite 201</td>
</tr>
<tr>
<td></td>
<td>Vacaville, California 95688</td>
</tr>
<tr>
<td>Solano County Department of Environmental</td>
<td>601 Texas Street</td>
</tr>
<tr>
<td>Management, Planning Services</td>
<td>Fairfield, California 94533</td>
</tr>
<tr>
<td>Solano County Water Agency</td>
<td>810 Vaca Valley Parkway, Suite 203</td>
</tr>
<tr>
<td></td>
<td>Vacaville, CA 95688</td>
</tr>
<tr>
<td>Yolo-Solano Air Quality Management District</td>
<td>1947 Galileo Court</td>
</tr>
<tr>
<td></td>
<td>Suite 103</td>
</tr>
<tr>
<td></td>
<td>Davis, California 95616</td>
</tr>
<tr>
<td>Sonoma State University,</td>
<td>1801 East Cotati Ave</td>
</tr>
<tr>
<td>Northwest Information Center</td>
<td>Rohnert Park, California 94928</td>
</tr>
<tr>
<td>North Central Information Center, Department</td>
<td>6000 J Street</td>
</tr>
<tr>
<td>of Anthropology, California State University,</td>
<td>Sacramento, California 95819</td>
</tr>
<tr>
<td>Sacramento</td>
<td></td>
</tr>
<tr>
<td>California Office of Historic Preservation</td>
<td>PO Box 942896</td>
</tr>
<tr>
<td></td>
<td>Sacramento, CA 94296-0001</td>
</tr>
<tr>
<td>Cortina Indian Rancheria of Wintun Indians</td>
<td>PO Box 1630</td>
</tr>
<tr>
<td></td>
<td>Williams, CA 95987</td>
</tr>
<tr>
<td>Yocha Dehe Wintun Nation</td>
<td>PO Box 18</td>
</tr>
<tr>
<td></td>
<td>Brooks, CA 95606</td>
</tr>
</tbody>
</table>
### Section 11.0 List of Environmental Permits Required

It is anticipated that the following federal, state, and local permits, approvals, and/or consultation activities will be required for the project.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Applicable Regulations</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>California State Water Resources Control Board</td>
<td>Federal Clean Water Act, NPDES Permit</td>
<td>Construction General Permit</td>
</tr>
<tr>
<td>Solano County</td>
<td>Chapter 31 County Code – Grading, Land Leveling, and Erosion Control</td>
<td>Major Grading Permit</td>
</tr>
<tr>
<td>Solano County Water Agency</td>
<td>Water supply and Flood Control</td>
<td>Coordination for discharge to creek</td>
</tr>
<tr>
<td>Solano Irrigation District</td>
<td>Water Systems &amp; Facilities</td>
<td>Coordination for canal crossing</td>
</tr>
<tr>
<td>Western Area Power Administration, Sierra Nevada Region</td>
<td>Easement Land Use</td>
<td>Coordination for activities within overhead high voltage transmission line easement</td>
</tr>
</tbody>
</table>
APPENDIX A:
AGENCY CORRESPONDENCE
February 12, 2018

California Environmental Protection Agency
8800 Cal Center Drive
Sacramento, California 95826-3200

RE: Department of Veterans Affairs
Environmental Assessment for Sacramento Valley National Cemetery
Dixon, Solano County, California

Dear Sir or Madam:

The Department of Veterans Affairs (VA) is proposing to expand the existing Sacramento Valley National Cemetery in Dixon, California. The cemetery is located approximately 30-miles southwest of downtown Sacramento at 5810 Midway Road Dixon, Solano County, California.

The cemetery currently serves veterans and their families in the Sacramento region. The purpose of the cemetery expansion is to continue to enable the VA to provide eligible Veterans and their families with a national cemetery of sufficient size and capacity to serve the projected needs in the Sacramento region for the next 10 years.

The expansion is a continuation of the original phased cemetery buildout plan forecasted to be completed by 2030. The expansion will include preplaced crypts, columbaria, hybrid natural burial section, committal shelter, stormwater treatment facilities, new roadways and expansion of existing cortege lanes. The expansion project will develop VA owned land that is currently leased for agricultural production.

Previously, the VA completed Environmental Assessments (EAs) during site selection in 2002 and prior to the first phase of cemetery development in 2005, both resulting in Findings of No Significant Impact. Now the VA intends to prepare an EA to evaluate the expansion. Please provide any concerns or applicable information regarding this site. There will be a Public comment period, as per NEPA regulations, once the draft EA phase is complete.

We greatly appreciate your assistance in this matter and ask that you let us know if you have an interest in the proposed project. If you would like to comment on the proposed project at this time, please contact Glenn Elliott at Glenn.Elliott@va.gov or at 202-632-5879, or mail comments to Department of Veterans Affairs, Office of Construction & Facility Management, 425 I Street NW, Suite 6W417A, Washington DC, 2001.

Sincerely,

Glenn Elliott
Environmental Engineer

Encl: Figure 1: General Project Location Map
March 21, 2018

Reply in Reference To: VA_2018_0319_001

Glenn Elliott
Environmental Engineer, P P/M
Office of Construction and Facilities Management
U.S. Department of Veterans Affairs
425 I Street, NW, Suite 6W417A
Washington DC, 20420

Re: Section 106 Consultation for Phase II Expansion, Sacramento Valley National Cemetery, Solano County

Dear Mr. Elliott:

The Department of Veterans Affairs (VA) is initiating consultation in compliance with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 300101), as amended, and its implementing regulation found at 36 CFR Part 800.

The VA are proposing to expand the boundaries of the Sacramento Valley National Cemetery, an eligible National Register of Historic Places (NRHP) property. The approximately 126 acre expansion area will consist of shelters, crypts, columbaria, burial sections and will require storm water system, road and circulation improvements.

Tribal notification, pedestrian surveys and record search efforts did not reveal any listed or eligible NRHP properties other than the Sacramento Valley National cemetery and the VA are requesting concurrence with their finding of no historic properties affected. After reviewing the information provided, the SHPO has the following comments:

1. The SHPO requests that future consultations include a narrative Area of Potential Effects (APE) justification to supplement and corroborate the provided boundary illustration. In the instance of this undertaking, the SHPO assumes that pursuant to 36 CFR Part 800.4(a)(1), the VA have defined and delineated the APE as the cemetery and the proposed expansion boundaries. Please notify the SHPO if there are any objections or clarifications to this interpretation.

2. The VA are proposing a finding of no historic properties affected, however as the Sacramento Valley National Cemetery is an eligible NRHP property, the
SHPO recommends and concurs that a finding of no adverse effect pursuant to 36 CFR Part 800.(d)(1) is appropriate.

3. Be advised that under certain circumstances, such as an unanticipated discovery or a change in project description, the USMC may have future responsibilities for this undertaking under 36 CFR Part 800.

If you have any questions or concerns, contact Ed Carroll of my staff at (916) 445-7006 / Ed.Carroll@parks.ca.gov.

Sincerely,

[Signature]

Julianne Polanco
State Historic Preservation Officer
APPENDIX B:
CULTURAL & TRIBAL DATA
ARCHAEOLOGICAL INVENTORY SURVEY

Sacramento Valley National Cemetery Expansion Project
circa 126-acres
Solano County, California.

Prepared for
Marcus H. Bole & Associates
104 Brock Drive
Wheatland, CA 95692

Author
Sean Michael Jensen, M. A.

Keywords for Information Center Use:
Archaeological Inventory Survey, 126 acres, Solano County, CEQA/NHPA, USGS Dixon and Allendale, Ca. 7.5° Quadrangles, No Significant Historical Resources, No Unique Archaeological Resources, No Historic Properties

January 20, 2018
ABSTRACT

This report details the results of an archaeological inventory survey of approximately 126 acres of land located immediately adjacent to the south side of Midway Road, approximately 0.7 miles east of Interstate 80, approximately 2 miles southwest of the City of Dixon, in Solano County, California. The land area is comprised of agricultural fields immediately adjacent to the existing Sacramento Valley National Cemetery.

The purpose of the proposed project is to continue to enable the VA to provide eligible Veterans and their families with a national cemetery of sufficient size and capacity to serve the projected needs in the Sacramento region for the next 10 years.

The expansion is a continuation of the original phased cemetery buildout plan forecasted to be completed by 2030. The expansion will include preplaced crypts, columbaria, hybrid natural burial section, committal shelter, stormwater treatment facilities, new roadways and expansion of existing cortege lanes. The expansion project will develop VA owned land that is currently leased for agricultural production.

Consultation with the Native American Heritage Commission produced negative results concerning the presence of sacred lands within or adjacent to the APE. All of the Native American representatives on the NAHC contact list were requested to supply any information they might have concerning prehistoric sites or traditional use areas within, adjacent or near the project area. No responses were received from the contacted parties. As no prehistoric cultural resources were identified within the APE, no additional consultation was conducted.

Existing records at the Northwest Information Center document that all of the APE had been subjected to previous archaeological survey, and that one historic-era site had been documented within the APE. An intensive pedestrian survey of the entire APE was undertaken in 2005 which concluded that this site had been razed and removed, in total. During the present pedestrian survey, the recorded site area was carefully inspected visually, and shovel scrapes were undertaken throughout the site boundary. No evidence of cultural material was observed.

No prehistoric or historic-era resources were identified during the present pedestrian survey.

Based on the absence of significant historical resources/unique archaeological resources/historic properties within the APE, archaeological clearance is recommended for the project/undertaking as presently proposed.
CONTENTS

1. INTRODUCTION...................................................................................................................... 1
   Project Background ................................................................................................................ 1
   Scope of Work ....................................................................................................................... 1

2. LOCATION, ENVIRONMENTAL and CULTURAL CONTEXT ........................................... 2
   Location ................................................................................................................................... 2
   Environment .......................................................................................................................... 2
   Prehistory ............................................................................................................................... 3
   Ethnography .......................................................................................................................... 4
   Historic Context .................................................................................................................... 5

3. RECORDS SEARCH and SOURCES CONSULTED ............................................................. 6
   Northwest Information Center Records ............................................................................. 6
   Other Sources Consulted ...................................................................................................... 7

4. ARCHAEOLOGICAL SURVEY and CULTURAL INVENTORY ........................................ 8
   Survey Strategy and Field Work .......................................................................................... 8
   General Field Observations ................................................................................................. 8
   Prehistoric Resources .......................................................................................................... 8
   Historic Resources ............................................................................................................... 8

5. PROJECT EFFECTS ............................................................................................................... 9

6. NATIVE AMERICAN CONSULTATION ........................................................................... 9

7. PROJECT SUMMARY ......................................................................................................... 9

8. REFERENCES CITED and/or UTILIZED ........................................................................... 11

ATTACHMENTS

Area of Potential Effects and Archaeological Survey Area Map.
SVNC Project Limits Map.
Letter to the Native American Heritage Commission (NAHC).
Response from the NAHC.
Consultation letters to parties listed by the NAHC.
DPR 523 for site “P-48-000711.”
1. INTRODUCTION

Project Background

This report details the results of an archaeological inventory survey of approximately 126 acres of land located immediately adjacent to the south side of Midway Road, approximately 0.7 miles east of Interstate 80, approximately 2 miles southwest of the City of Dixon, in Solano County, California. The land area is comprised of agricultural fields immediately adjacent to the existing Sacramento Valley National Cemetery.

The purpose of the proposed project is to continue to enable the VA to provide eligible Veterans and their families with a national cemetery of sufficient size and capacity to serve the projected needs in the Sacramento region for the next 10 years.

The expansion is a continuation of the original phased cemetery buildout plan forecasted to be completed by 2030. The expansion will include preplaced crypts, columbaria, hybrid natural burial section, committal shelter, stormwater treatment facilities, new roadways and expansion of existing cortege lanes. The expansion project will develop VA owned land that is currently leased for agricultural production.

Since the project will involve physical disturbance to ground surface and sub-surface components in conjunction with cemetery expansion, it has the potential to impact cultural resources that may be located within the area of potential effects (APE). In this case, the APE would consist of the circa 126-acre expansion area. Evaluation of the project’s potential to impact cultural resources must be undertaken in conformity with Solano County rules and regulations, and in compliance with requirements of the California Environmental Quality Act of 1970, Public Resources Code, Section 21000, et seq. (CEQA), and The California CEQA Environmental Quality Act Guidelines, California Administrative Code, Section 15000 et seq. (Guidelines as amended).

Additionally, since the project will involve federal review by one or more federal agencies, the project must also conform with federal guidelines for assessing effects to cultural resources, including in particular Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800), Section 2(b) of Executive Order 11593, Section 101(b)(4) of the National Environmental Policy Act, the Archaeological Resources Protection Act, and other rules and regulations.

Scope of Work

Compliance with CEQA requires completion of projects in conformity with Section 15064.5 of the amended CEQA Guidelines and other Sections. Compliance with Section 106 of the NHPA requires completion of projects in conformity with the standards, guidelines, and principles in the Advisory Council’s Treatment of Archaeological Properties: A Handbook (1980), and Archaeology and Historic Preservation: Secretary of the Interior’s Standards and Guidelines (1983). Based on CEQA and NEPA requirements, the following specific tasks were considered an adequate and appropriate Scope of Work for this project:
• Conduct a records search at the Northwest Information Center at CSU-Sonoma and consult with the Native American Heritage Commission and interested Native American representatives. The goals of the records search and consultation are to determine (a) the extent and distribution of previous archaeological surveys, (b) the locations of known archaeological sites and any previously recorded archaeological districts, and (c) the relationships between known sites and environmental variables. This step is designed to ensure that, during subsequent field survey work, all significant/eligible cultural resources are discovered, correctly identified, fully documented, and properly interpreted.

• Conduct a pedestrian survey of the APE in order to record and evaluate any previously unidentified cultural resources. Based on map review, a complete coverage, intensive survey was considered appropriate, given the presence of high archaeological sensitivity within the property. The purpose of the pedestrian survey is to ensure that any previously identified sites are re-located and evaluated in relation to the present project/undertaking. For any previously undocumented sites discovered, the field survey would include formally recording these resources on State of California DPR-523 Forms.

• Upon completion of the records search and pedestrian survey, prepare a Final Report that identifies project effects and recommends appropriate mitigation measures for sites that might be affected by the undertaking and that are considered significant or potentially significant per CEQA, and/or eligible or potentially eligible for inclusion on the National Register of Historic Places.

The remainder of the present document constitutes the Final Report for this project, detailing the results of the records search, consultation and pedestrian survey and providing recommendations for treatment of significant/eligible archaeological and historic sites. All field survey work followed guidelines provided by the State Historic Preservation Office (Sacramento) and conforms to accepted professional standards.

2. Location, Environmental and Cultural Context

Location

The project area comprises approximately 126 acres of land which has been subjected to agricultural development and located immediately adjacent to the south side of Midway Road, approximately 0.7 miles east of Interstate 80, approximately 2 miles southwest of the City of Dixon, in Solano County, California. Lands affected are located within a portion of Sections 32 & 33 of Township 7 North, Range 1 East, as shown on the USGS Dixon and Allendale, California, 7.5' Series Quadrangles (see attached Project Location Map).

Environment

The project area occupies flat lands comprised of alluvial fans deposited by streams draining the eastern slopes of the southern portion of the North Coast Mountain Range. McCune Creek is located immediately east of the APE, while Sweeney Creek is located adjacent to
the south side of the APE. Both of these stream courses have been channelized, and re-directed from their natural routes.

Geologically, the APE is situated on Older Quaternary Alluvium, originating from the Coast Range, which has been dissected by stream courses, and forming the Sacramento-San Joaquin Delta’s northern shoreline. These deposits are comprised of loams, sandy loams, silty-clay loams and clay associated with the Capay, Clear Lake, Reif, San Ysidro, Sycamore and Yolo soil groups. These soils have demonstrated very high agricultural productivity, and consequently, have been substantially disturbed over the past 150 years as the region has undergone agricultural intensification.

Prior to agricultural development, the project region exhibited grassy plains, punctuated by riparian stream corridors (Kuchler 1977), which supported a vast array of animals, including: pronghorn antelope, tule elk, grizzly bear, and numerous additional mammals, fish, birds, reptiles, amphibians and insects.

**Prehistory**

The earliest residents in the Great Central Valley are represented by the Fluted Point and Western Pluvial Lakes Traditions, which date from about 11,500 to 7,500 years ago (Moratto 2004). Within portions of the Central Valley of California, fluted projectile points have been found at Tracy Lake (Heizer 1938) and around the margins of Buena Vista Lake in Kern County. Similar materials have been found to the north, at Samwel Cave near Shasta Lake and near McCloud and Big Springs in Siskiyou County. These early peoples are thought to have subsisted using a combination of generalized hunting and lacustrine exploitation (Moratto 2004).

These early cultural assemblages were followed by an increase in Native population density after about 7,500 years ago. One of the most securely dated of these assemblages in north-central California is from the Squaw Creek Site located north of Redding. Here, a charcoal-based C-14 date suggests extensive Native American presence around 6,500 years ago, or 4,500 B.C. Most of the artifactual material dating to this time period has counterparts further south, around Borax (Clear) Lake to the west, and the Farmington Area in a Valley setting east of Stockton. Important artifact types from this time period include large wide-stemmed projectile points and manos and metates.

In the Northern Sacramento Valley in the general vicinity of the project area, aboriginal populations continued to expand between 6,500 and 4,500 years ago. Early Penutian-speaking arrivals in this area may be represented by the archaeological complex known in the literature as the “Windmiller” or “Early Horizon.” These sites date to about 4,000-5,000 years ago, with the connection to Penutian-speaking peoples suggested on the basis of extended burials, large leaf-shaped and stemmed projectile points similar to points of the Stemmed Point Tradition in the Plateau and portions of the Great Basin, large villages established along major waterways, and elaborate material culture with a wide range of ornamental and other non-utilitarian artifact types being present (Ragir 1972). The continuation of this pattern through the “Middle Horizon”, or from about 1,000 B.C. to A.D. 300, has also been documented at riverine sites within the Sacramento Valley, including
several sites east of Dixon on the west side of the Sacramento River, and along delta margins.

Sometime around AD 200-300, the Valley may have experienced another wave of Penutian immigration. Arriving ultimately from southern Oregon and the Columbia and Modoc Plateau region and proceeding down the major drainage systems (including the Feather, Yuba and American Rivers and of course the Sacramento River), these Penutian-speaking arrivals may have displaced the earlier populations, including remnant Hokan-speaking peoples still resident within the Valley. Presumably introduced by these last Penutian-speaking peoples to arrive were more extensive use of bulbs and other plant foods, animal and fishing products more intensively processed with mortars and pestles, and perhaps the bow and arrow and associated small stemmed- and corner-notched projectile points.

**Ethnography**

The project area is located within territory which, at the time of Contact with European/American culture (circa AD 1850), was claimed by the Patwin (Johnson 1978). The territorial boundaries of the Patwin are described as extending along the Sacramento River from the town of Princeton to the San Pablo and Suisun bays, abutting the Pomo and Wappo to the west.

The Patwin were Penutian speakers, for whom the basic social unit was the family, although the village may also have functioned as a social, political and economic unit. Villages were usually located near water sources, with major villages inhabited mainly in the winter as it was necessary to go out into the hills and higher elevation zones to establish temporary camps during food gathering seasons (i.e., spring, summer and fall). Villages typically consisted of a scattering of bark houses, numbering from four or five to several dozen in larger villages, each house containing a single family of from three to seven people.

As with all northern California Indian groups, economic life for these Penutian speaking groups revolved around hunting, fishing and the collecting of plant foods. Deer were an important meat source and were hunted by individuals by stalking or snaring, or by groups in community drives. Salmon runs, and other food resources available along the Sacramento River and some of its major tributaries, also contributed significantly to local economies. While much of the fish protein was consumed immediately, a significant percentage, particularly during the fall salmon run, was prepared for storage and consumed during winter months. Acorns represented one of the most important vegetal foods and were particularly abundant within the Oak Park Woodland which flanked both sides of the Sacramento River.

The ceremonial chief directed the entire tribelet’s Kuksu Cult, a religious cult and secret society that performed tribal initiations, ghost ceremonies and curing ceremonies (Kroeber 1907).

The Patwin were documented by Asians and Europeans as early as the late 16th century, and their populations remained relatively stable until the incursion of Spanish settlers and missionaries during the latter portion of the 18th century. The indigenous populations at this time were “missionized” and relocated to various missions south of their traditional territory.
Due to “missionization,” inter-tribal marriages became more common, and new missions were established throughout the tribe’s traditional lands.

Mexico gained independence from Spain in 1821, and the Mission Period officially ended in 1834. The newly established secular government resulted in the Patwin being freed from the Franciscan missionaries, only to find themselves serving new, land-grant masters.

Relations between Euro-Americans and Native Americans in the northern Sacramento Valley followed the course of interaction documented in most other parts of North America, but with particularly devastating consequences for the Sacramento Valley Indians. John Work’s fur trapping expedition through the region in 1832-33 resulted in the introduction of several communicable diseases, the results of which were devastating to Native culture and society (Work 1945; Cook 1955).

Resource Considerations, Native American Sites: The discussion of regional prehistory and ethnography provides insight into the types of Native American sites most likely to be present within the general project vicinity, including:

- Large village sites located along the margins of streams, particularly at confluences (e.g., Jensen 1996).
- Surface scatters of lithic artifacts and debitage without evidence of buried cultural deposits, resulting from short-term occupation and/or specialized economic activities.
- Mortuary sites, often but not exclusively associated with large village complexes.
- Buried cultural deposits associated with no-longer-visible stream levees and encountered at depths to 10-20 feet in some areas.
- Isolated finds of aboriginal artifacts and flakes.

Historic Context

Interior California was initially visited by Anglo-American fur trappers, Russian scientists, and Spanish-Mexican expeditions during the early part of the 19th Century. These early explorations were followed by a rapid escalation of European-American activities, which culminated in the massive influx fostered by the discovery of gold at Coloma in 1848.

Early Spanish expeditions arrived from Bay Area missions as early as 1804, penetrating the northwestern San Joaquin Valley (Cook 1976). By the mid-1820s, hundreds of fur trappers were annually traversing the Valley on behalf of the Hudson’s Bay Company (Maloney 1945). By the late 1830s and early 1840s, several small permanent European-American settlements had emerged in the Central Valley and adjacent foothill lands, including Ranchos in the interior Coast Range, and of course the settlement at New Helvetia (Sutter’s Fort) at the confluence of the Sacramento and American Rivers (Sacramento).

Following Mexican independence from Spain in 1821, land grants were established by citizens throughout the state. The Rancho Rio de los Putos was one such grant which exceeded 17,000-acres situated on Putah Creek near the community of Williams. Granted to William Wolfskill in 1842, the land was settled by William and his brothers, but did not extend into the present APE.
With the discovery of gold in the Sierra Nevada, large numbers of European-Americans, Hispanics, and Chinese arrived in and traveled through the Valley. The Valley’s east-side mining communities’ demands for hard commodities led quickly to the expansion of ranching and agriculture throughout the Great Central Valley and the interior valleys of the Coast Range. Stable, larger populations arose and permanent communities slowly emerged in the Central Valley, particularly along major transportation corridors.

The Central Pacific Railroad (now Union Pacific Railroad) was constructed southeast of the present APE in 1869, and the Lincoln Highway (now Interstate 80) was ultimately constructed a short distance west of the APE.

The present APE is located within Solano County, which is one of California’s original counties. Established in 1850, the county was named in honor of Patwin chief, Solano. As early as 1890, the present APE was owned by two separate individuals. C. L. Taylor owned the portion of the APE located within Section 32, while J. C. Dune owned that portion of the APE located within Section 33. The land was subjected to continuous agricultural use, with residential developments coinciding with agricultural development (i.e., farm houses were built on family farm property).

Periodic flooding of the region was addressed during the latter portion of the 20th century when the Solano Resource Conservation District (SRCD) was established in 1944. As part of their overall flood control plan, the SRCD embarked on a program of channelizing both Sweeney and McCune Creeks during the 1960s. The actions included straightening, clearing, deepening and leveling the creeks and their adjacent banks and levees.

3. RECORDS SEARCH and SOURCES CONSULTED

Several types of information were considered relevant to evaluating the types of archaeological sites and site distribution that might be encountered within the project area. The information evaluated prior to conducting the pedestrian survey includes data maintained by the Northwest Information Center (CSU-Sonoma), and available published and unpublished documents relevant to regional prehistory, ethnography, and early historic developments.

Northwest Information Center Records

The official Solano County archaeological records were examined on December 7, 2017 (NWIC File No. 17-1529). The records search documented the following existing conditions for the circa 126-acre APE:

- According to the Information Center, the entire APE has been subjected to previous archaeological survey. The Information Center’s records indicate that an investigation conducted by Bakic and Maniery (1998) was located within the present APE. However, examination of this report indicates that the investigation was actually conducted across the Carquinez Strait, nearly 40 miles southwest of the present APE (S-20045). One investigation, however, has been conducted within the subject APE. Dougherty, Baker
and Maniery (2005) conducted a survey of 545 acres, including all of the present APE, for the Sacramento Valley National Cemetery (S-30043). Two additional investigations have been documented within the ¼-mile search radius, including:

<table>
<thead>
<tr>
<th>NWIC Report #</th>
<th>Date</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-12582</td>
<td>1991</td>
<td>Syda</td>
</tr>
<tr>
<td>S-34250</td>
<td>2007</td>
<td>Coleman</td>
</tr>
</tbody>
</table>

Eight (8) additional investigations, listed as “Other Reports” due to “little or no field work, or missing maps” were identified by the Information Center as being within the 0.25-mile search radius.

- According to the Information Center’s records, no prehistoric resources have been documented within the APE, nor within the ¼-mile search radius. One historic-era resource (P-48-000711), a residential/ranch complex, has been recorded within the south-central portion of the property. This site was recorded and evaluated by architectural historians Herbert, Webb and Johnson in 2001, and recommended not eligible for inclusion in the National Register of Historic Places. The site area was subsequently examined during the 2005 investigation where the reporters confirmed that the site had been totally razed and removed, and consequently updated the Primary Records with this information.

**Other Sources Consulted**

In addition to examining the archaeological site and survey records of Solano County maintained at the Northwest Information Center, the following sources were also included in the search conducted at the Information Center, or were evaluated separately:

- The California Register of Historical Resources.
- The California Inventory of Historic Resources (State of California 1976).
- The California Historical Landmarks (State of California 1996).
- The Historic Property Data File (OHP 4-5-12).
- The CALTRANS State and Local Bridge Survey (1989 and updates).
- 1862 GLO Plat Map, T7N, R1E.
- 1908 USGS Vacaville quadrangle.
- 1912 USGS Meridian quadrangle.
- 1872 Solano County Map.
- 1953 USGS Vacaville 7.5’ quadrangle.
- Existing published and unpublished documents relevant to prehistory, ethnography, and early historic developments in the vicinity. These sources, reviewed below, provided a general environmental and cultural context by means of which to assess likely site types and distribution patterns for the project area.
4. **ARCHAEOLOGICAL SURVEY and CULTURAL INVENTORY**

**Survey Strategy and Field Work**

All of the circa 126-acre APE was subjected to intensive pedestrian survey by means of walking parallel transects, spaced at 20-meter intervals, throughout the entire APE.

In searching for cultural resources, the surveyor took into account the results of background research and was alert for any unusual contours, soil changes, distinctive vegetation patterns, exotic materials, artifacts, feature or feature remnants and other possible markers of cultural sites.

Fieldwork was undertaken on January 2-3, 2018 by Sean Michael Jensen. Mr. Jensen is a professional archaeologist, with 31 years of experience in archaeology and history, who meets the Secretary of Interior’s Standards for Professional Qualification, as demonstrated in his listing on the California Historical Resources Information System list of qualified archaeologists and historians. No special problems were encountered and all survey objectives were satisfactorily achieved.

**General Field Observations**

Field work identified the following general conditions within the project area. Extensive disturbance to the ground surface, and subsurface, has occurred throughout all of the APE as a result of past and ongoing agricultural utilization, as well as post-2001 disturbance associated with land preparation for the Sacramento Valley National Cemetery grounds. Additional disturbance has accompanied ongoing maintenance of adjacent features, including McCune Creek, Sweeney Creek and Midway Road. Finally, both overhead and buried utilities have further contributed to ground disturbance within the APE.

**Prehistoric Resources**

No evidence of prehistoric use or presence was noted during the pedestrian survey. The absence of these resources may best be explained by the presence of more suitable habitation settings located west of the APE and west of Interstate 80, where topography would have favored long-term settlement. Secondarily, the absence of such resources may be explained by the degree of disturbance which has been undertaken within the APE, and surrounding lands, over the past 150 years.

**Historic Resources**

As noted in the Records Search section, above, one historic-era site (P-48-000711) was recorded within the APE in 2001. Comprised of two residences and four sheds, this site was recommended, in 2001, not eligible for inclusion in the National Register of Historic Places. An intensive pedestrian survey of the APE, conducted in 2005, confirmed that the site had been completely razed subsequent to its recordation, and that all of the site’s material remains had been removed from the property. The present pedestrian survey involved a
careful visual inspection of the recorded site boundary, and also involved shovel scrapes within the same area. No historic-era cultural material was identified during the present investigation. The land area which contained the site is currently being utilized for stockpiling of soils and sod.

5. PROJECT EFFECTS

A project may have a significant impact or adverse effect on significant historical resources/unique archaeological resources/historic properties if the project will or could result in the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance or values of the historic resource would be materially impaired. Actions that would materially impair a cultural resource or historic property are actions that would alter or diminish those attributes of a site that qualify the site for inclusion in State site registers or the National Register of Historic Places.

Based on the specific findings detailed above under *Archaeological Survey and Cultural Inventory*, no significant historical resources/unique archaeological resources/historic properties are present within the project area and no historic properties/significant historical resources/unique archaeological resources will be affected by the undertaking, as presently proposed.

6. Native American Consultation

An information request letter was delivered to the NAHC requesting a review of their Sacred Lands Files (SLF), and a list of Native American Contacts for the APE. The NAHC responded on December 4, 2017, indicating that a search of the Sacred Lands Files produced negative results.

The consultation list from the NAHC included the following:

- Charlie Wright, Cortina Indian Rancheria of Wintu Indians
- Leland Kinter, Yocha Dehe Wintun Nation

Letters were delivered on December 6, 2017 to all representatives on the NAHC contact list, and all those contacted were requested to supply any information they might have concerning prehistoric sites or traditional use areas within, adjacent or near the project area. No responses have been received from the contacted parties.

As no prehistoric cultural material was identified during either the records search or pedestrian survey, no additional consultation was undertaken.

7. PROJECT SUMMARY

This report details the results of an archaeological inventory survey of approximately 126 acres of land located immediately adjacent to the south side of Midway Road, approximately 0.7 miles east of Interstate 80, approximately 2 miles southwest of the City of Dixon, in
Solano County, California. The land area is comprised of agricultural fields immediately adjacent to the existing Sacramento Valley National Cemetery.

The purpose of the proposed project is to continue to enable the VA to provide eligible Veterans and their families with a national cemetery of sufficient size and capacity to serve the projected needs in the Sacramento region for the next 10 years.

The expansion is a continuation of the original phased cemetery buildout plan forecasted to be completed by 2030. The expansion will include preplaced crypts, columbaria, hybrid natural burial section, committal shelter, stormwater treatment facilities, new roadways and expansion of existing cortege lanes. The expansion project will develop VA owned land that is currently leased for agricultural production.

Consultation with the Native American Heritage Commission produced negative results concerning the presence of sacred lands within or adjacent to the APE. All of the Native American representatives on the NAHC contact list were requested to supply any information they might have concerning prehistoric sites or traditional use areas within, adjacent or near the project area. No responses were received from the contacted parties. As no prehistoric cultural resources were identified within the APE, no additional consultation was conducted.

Existing records at the Northwest Information Center document that all of the APE had been subjected to previous archaeological survey, and that one historic-era site had been documented within the APE. An intensive pedestrian survey of the entire APE was undertaken in 2005 which concluded that this site had been razed and removed, in total. During the present pedestrian survey, the recorded site area was carefully inspected visually, and shovel scrapes were undertaken throughout the site boundary. No evidence of cultural material was observed.

No prehistoric or historic-era resources were identified during the present pedestrian survey.

Based on the absence of significant historical resources/unique archaeological resources/historic properties within the APE, archaeological clearance is recommended for the project/undertaking as presently proposed, although the following general provisions are considered appropriate:

1. **Consultation in the event of inadvertent discovery of human remains:** In the event that human remains are inadvertently encountered during trenching or other ground-disturbing activity or at any time subsequently, State law shall be followed, which includes but is not limited to immediately contacting the County Coroner's office upon any discovery of human remains.

2. **Consultation in the event of inadvertent discovery of cultural material:** The present evaluation and recommendations are based on the findings of an inventory-level surface survey only. There is always the possibility that important unidentified cultural materials could be encountered on or below the surface during the course of future bank stabilization or other activities. This possibility is particularly relevant considering the constraints generally to
archaeological field survey, and particularly where past ground disturbance activities (e.g., orchard development and erosion) have partially obscured historic ground surface visibility, as in the present case. In the event of an inadvertent discovery of previously unidentified cultural material, archaeological consultation should be sought immediately.

8. REFERENCES CITED and/or UTILIZED

Bakic, Tracy and Mary Maniery

Barbour, M. G. and J. Major (eds.)

Bethard, K. R.
1988 *A Projectile Point Typology for Archaeological Site CA-BUT-301: An Exogene Cave in the Northern Sierra Foothills.* Unpublished Master’s Thesis, Department of Anthropology, California State University, Sacramento.

California, Department of Transportation (Caltrans)
1987 *Caltrans State and Local Bridge Survey.* Sacramento, California.

1989 *Caltrans State and Local Bridge Survey.* Sacramento, California.

California, State of
1970 *Public Resources Code, Section 21000, et seq. (CEQA), and The California Environmental Quality Act Guidelines, California Administrative Code, Section 15000 et seq. (Guidelines, as amended October 1998).* State of California, Sacramento.


Chartkoff, Joseph L. Don Miller, and Keith Johnson

Clark, William B.

Coleman, Jason

Cook, S. F.

Dixon, Roland B.

Doughert, John, Cindy Baker and Mary Maniery

Guinn, J.M.

Heizer, Robert F.

Jackson, T. L.

Jensen, Peter M. and Paul R. Reed

Johnson, J. J. and Patti Johnson
Kroeber, Alfred L.  

Kuchler, A. W.  

Maloney, Alice Bay  

McGowan, J.  

Moratto, Michael  

Ragir, Sonia  

Suchey, Judy Myers  

Sundahl, Elaine  
1982 *The Shasta Complex in the Redding Area*. Unpublished Master’s Thesis, Department of Anthropology, California State University, Chico.

Syda, Keith  

United States Department of the Interior  

Work, John  
ARCHAEOLOGICAL INVENTORY SURVEY

Sacramento Valley National Cemetery Expansion Project
circa 126-acres
Solano County, California.

ATTACHMENTS

- Area of Potential Effects and Archaeological Survey Area Map
- SVNC Project Limits Map
- Records Search from the Northwest Information Center (NWIC)
- Letter to the Native American Heritage Commission (NAHC)
- Response from the NAHC.
- Consultation letters to parties listed by the NAHC.
- DPR 523 for site “P-48-000711”
Area of Potential Effects (APE): Sacramento Area National Cemetery, ±150 Acre Project Site, Sections 32 & 33, Township 7 North, Range 1 East (Dixon & Allendale USGS Quadrangles), Solano County, California. Center of site located approximately 38.4135619N, -121.881724W.
12/7/2017

Sean Jensen
Genesis Society
7053 Molokai Drive
Paradise, CA  95969

re: SVNC Expansion Project

The Northwest Information Center received your record search request for the project area referenced above, located on the Dixon & Allendale USGS 7.5’ quads. The following reflects the results of the records search for the project area and a 0.25 mile radius:

<table>
<thead>
<tr>
<th>Resources within project area:</th>
<th>P-48-711.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources within 0.25 mile radius:</td>
<td>None</td>
</tr>
<tr>
<td>Reports within project area:</td>
<td>S-20045 &amp; 30043.</td>
</tr>
<tr>
<td>Reports within 0.25 mile radius:</td>
<td>S-12582 &amp; 34250.</td>
</tr>
<tr>
<td>Other Reports within records search radius:</td>
<td>S-595, 848, 9462, 9795, 17835, 30204, 32596, &amp; 33600. These reports are classified as Other Reports; reports with little or no field work or missing maps. The electronic maps do not depict study areas for these reports, however a list of these reports has been provided. In addition, you have not been charged any fees associated with these studies.</td>
</tr>
</tbody>
</table>

Resource Database Printout (list): ☑ enclosed ☑ not requested ☐ nothing listed
Resource Database Printout (details): ☑ enclosed ☑ not requested ☐ nothing listed
Resource Digital Database Records: ☑ enclosed ☑ not requested ☐ nothing listed
Report Database Printout (list): ☑ enclosed ☑ not requested ☐ nothing listed
Report Database Printout (details): ☑ enclosed ☑ not requested ☐ nothing listed
Report Digital Database Records: ☑ enclosed ☑ not requested ☐ nothing listed
Resource Record Copies: ☑ enclosed ☑ not requested ☐ nothing listed
Report Copies: ☑ enclosed ☑ not requested ☐ nothing listed
OHP Historic Properties Directory: ☑ enclosed ☑ not requested ☐ nothing listed
Archaeological Determinations of Eligibility: ☑ enclosed ☑ not requested ☑ nothing listed
CA Inventory of Historic Resources (1976): ☒ enclosed ☐ not requested ☐ nothing listed
Caltrans Bridge Survey: ☐ enclosed ☒ not requested ☐ nothing listed
Ethnographic Information: ☐ enclosed ☒ not requested ☐ nothing listed
Historical Literature: ☒ enclosed ☐ not requested ☐ nothing listed
Historical Maps: ☒ enclosed ☐ not requested ☐ nothing listed
Local Inventories: ☐ enclosed ☒ not requested ☐ nothing listed
GLO and/or Rancho Plat Maps: ☒ enclosed ☐ not requested ☐ nothing listed
Shipwreck Inventory: ☐ enclosed ☒ not requested ☐ nothing listed

*Notes:
** Current versions of these resources are available on-line:
Caltrans Bridge Survey: http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Lisa C. Hagel
Researcher
December 2, 2017

Native American Heritage Commission
1550 Harbor Boulevard,
West Sacramento, California 95691

Subject: Sacramento Valley National Cemetery Expansion Project, circa 80- acres, Solano County, California.

Dear Commission:

We have been requested to conduct the archaeological survey, for the above-cited project, and are requesting any information you may have concerning archaeological sites or traditional use areas for this area. Any information you might supply will be used to supplement the archaeological and historical study being prepared for this project.

Project Name: Sacramento Valley National Cemetery Project
County: Solano
Maps: USGS Dixon and Allendale 7.5’
Location: Portion of Sections 32 & 33 of T7N, R1E.

Thanks in advance for your assistance.

Regards,

Sean Michael Jensen

Sean Michael Jensen, Administrator
December 4, 2017

Sean Jensen
Genesis Society

Sent by Email: seanjensen@comcast.net
Number of Pages: 2

RE: Sacramento Valley National Cemetery Expansion Project, Solano County

Dear Mr. Jensen:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed for the area of potential project effect (APE) referenced above with negative results. Please note that the absence of specific site information in the Sacred Lands File does not indicate the absence of Native American cultural resources in any APE.

I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: Sharaya.souza@nahc.ca.gov.

Sincerely,

Sharaya Souza
Staff Services Analyst
(916) 573-0168
Cortina Indian Rancheria of Wintun Indians  
Charlie Wright, Chairperson  
P.O. Box 1630  
Williams, CA 95987  
Wintun / Patwin  
(530) 473-3274 Office  
(530) 473-3301 Fax

Yocha Dehe Wintun Nation  
Leland Kinter, Chairperson  
P.O. Box 18  
Brooks, CA 95606  
Wintun (Patwin)  
kinter@yochadehe-nsn.gov  
(530) 796-3400  
(530) 796-2143 Fax

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessments for the Sacramento Valley National Cemetery Expansion Project, Solano County.
Native American Individuals, Groups and Tribes

Subject: Sacramento Valley National Cemetery Project, circa 80-acres, Solano County, California.

Dear Interested Native Americans:

Enclosed is a USGS topo-based map showing the location for an emergency river bank stabilization project within Colusa County, California.

We have been requested to conduct the archaeological survey, and are requesting any information you may have concerning archaeological sites or traditional use areas for this area. Any information you might supply will be used to supplement the archaeological and historical study being prepared for this project.

Project Name: Sacramento Valley National Cemetery Project
County: Solano
Maps: USGS Dixon and Allendale 7.5’
Location: Portion of Sections 32 & 33 of T7N, R1E.

Thanks for your help. Please call with any questions.

Regards,

Sean Michael Jensen

Sean Michael Jensen, Administrator
MR-5 was visited on February 2, 2005. The structures recorded in 2001 are no longer present having been razed. The area is marked by power supply poles, a scatter of structural debris and stands of prickly pear.
The property located at 5818 Midway Road contains two residences and four sheds. All buildings are clustered together and are sited approximately a half-mile off Midway Road, surrounded by fields on three sides, with Sweeney Creek to the south. The oldest building on this property, a Bungalow style home (Photograph 1), probably constructed in the 1920s, is located on the east side of the drive, separated from the other buildings. This wood frame building (Building A) includes a rear addition; apparently originally built to have been a separate residence. The current building is rectangular in plan and is topped by a composition shingle, front gable roof with narrow projecting eaves, exposed rafters and purlins and wood fascia. (See Continuation Sheet)
Joshua N. Bayley purchased Preemption Certificate No. 246 in 1867 for 160 acres in the western-central quarter of Section 33, T7N/R1E. By 1877, the Bayley property was subdivided into a northern half and a southern half. By 1877, E. D. Duke, presumably Eliza Daniels Duke, wife of John Gary Duke, obtained a 320-acre tract located in the northern ½ of Section 33, T7N/R1E. However, by 1883, Eliza died, leaving her interest in the property to her husband. John Gary Duke was an early pioneer of Solano County, originally settling near Batavia in 1857. A native of Mississippi, Duke left California to fight for the Confederacy during the Civil War, only to find his way back to Solano County in the late 1860's, bringing with him Nancy Geary, an ex-slave from Missouri.¹

P3a. Description (continued):

The rear addition, slightly offset from the front portion of the building, has a slightly steeper pitch roof. The building is sheathed in narrow wood clapboard siding with corner boards. The main entrance is accessed via a raised wood porch centered on the building's façade and sheltered under a shed roof awning supported by wood posts. The original decorative wood panel door with an upper sash remains. The front portion of the home sits on a raised perimeter concrete foundation while the rear section sits on stacked concrete blocks. This area includes a recessed porch on the north side of the home, as well as access to a partial basement. An incomplete addition is located on the south side of this section and is only sheathed in plywood. The exterior of the building remains intact within this area. While all original windows have been replaced with vinyl sliding windows with false muntins, it appears that most original wide wood window trim remains.

The second residence (Building B) was probably constructed circa. 1950. This modest home sits on a concrete foundation and is sheathed in horizontal V-grooved wood siding. The building consists of two primary sections, each topped by a low-pitched, rolled composition side gable roof with narrow projecting eaves and exposed rafters. Windows are a mixture of 6/6 and 3/1 double hung wood frame windows, vinyl sliding windows with false muntins, and aluminum sliding windows. This building is shown in Photograph 2.

Just south of this residence is a shed (Building C, Photograph 3) that was originally constructed as a garage probably around the time of the first home. This asymmetrical, wood frame building has a front-gable roof and two-shed roof, open bay additions on the north and south side. An additional wood frame shed (Building D) is located just south of this building. This building, shown in Photograph 4, is topped by a corrugated metal shed roof. South of this structure is a chicken coop (Building E) with a low-pitched corrugated metal shed roof (picture unavailable). The third shed is sited southwest of the other buildings and just north of the Sweeney Creek. This dilapidated, wood frame shed (Building F) has a front gable roof (Photograph 5). The roof as well as all sides are clad in corrugated metal.

B10. Significance (continued):

By 1909, Otis B. Little held the title to the Duke property. The house currently on the property, circa 1925, is presumably constructed by Little. The property was later sold to a Mr. Cardoza.

The second residence (Building B), the three sheds (Buildings C, D, and F), and the chicken coop (Building E), all appear to be in Section 32, T7N/R1E. This property was first owned by Mathis Walker who acquired Homestead Certificate No. 109 in 1869 for the northeast quadrant of 160 acres in Section 32, T7N/R1E. By 1877, S. Drake held the title to this property and established a successful farm. His assets totaled $4,500 in 1879. His main crops were hay and wheat and his livestock included a cow, 70 pigs, and 600 chickens. By 1890, the property was sold to Charles L. Taylor who had several properties in Section 32, including the Drake property. Taylor sold his properties by 1915, by which time R.E. Zimmerman had obtained ownership of the northwest quadrant of the original Walker property. The remaining three-quarters of the Walker property was sold to J.S. Zimmerman (presumably brothers). Sometime before 1927, the Walker property was subdivided in where the western two-
Photographs

Photograph 2. Camera facing northwest.
Building B, Second Residence

Photograph 3. Camera facing northwest.
Building C, Garage/Shed.
Photographs


Photograph 5. Building F, Shed (left), Building E, Chicken Coop (right), camera facing west.
Sketch Map

A. Main house
B. Second Residence
C. Garage/Shed
D. Shed
E. Chicken Coop
F. Shed

Midway Road

Sweaty Creek

A
B
C
D
E
F

*Resource Name or # (Assigned by recorder) Map Reference No. 5
*Recorded by JRP Date September 2001 Continuation Update
APPENDIX C:

BIOLOGICAL ASSESSMENT

DELINEATION OF WATERS OF THE U.S.
BIOLOGICAL RESOURCES EVALUATION

Sacramento Valley National Cemetery Phase 2 Expansion
5810 Midway Road, Dixon, CA 95620

Prepared for

Department of Veterans Affairs
Office of Construction & Facilities Management
Washington DC 20001

Prepared by

Bole & Associates
104 Brock Drive
Wheatland, CA 95692

January 31, 2018
Table of Contents

1. Summary ...................................................................................................................... 1

2. Introduction .................................................................................................................. 1
   2.1. Purpose.................................................................................................................... 1
   2.2. Detailed Scope-of-Services.................................................................................... 2
   2.3. Limitations, Exceptions, and Data Gaps ............................................................... 2
   2.4. Reliance .................................................................................................................. 2
   2.5. Biological Personnel ............................................................................................. 2

3. Site Description ............................................................................................................ 2
   3.1. Location .................................................................................................................. 3
   3.2. Site and Vicinity Characteristics .......................................................................... 3
   3.3. Current Use of the Properties .............................................................................. 4
   3.4. Descriptions of Affected Environments ............................................................... 4
   3.5. Evaluation of Special Status Species ..................................................................... 4

4. Physical Settings Sources and Results ....................................................................... 10

5. Findings and Recommendations ................................................................................ 11

APPENDIX A: MAPS

APPENDIX B: SITE OBSERVATIONS PHOTOGRAPHS

APPENDIX C: USFWS & CNDDB DATABASES
1. Summary

Marcus H. Bole & Associates (MHBA) has performed a Biological Resources Evaluation of a 126 acre portion of the 232 acre Sacramento Valley National Cemetery. The current area proposed for Phase 2 Development (SVNC2) consists of 111 acres of undeveloped land with ruderal grasses and forbs, and 15 acres of developed National Cemetery property. Phase 2 Development is located within the Sacramento Valley National Cemetery, 5810 Midway Road, Dixon, California, within Sections 32 & 33, Township 7 North, Range 1 East, Dixon & Allendale 7.5' USGS Quadrangles, approximately 38.4135619°North, -121.881724West. Surveys for special status plant and wildlife species were conducted in accordance with United States Fish & Wildlife (USFWS) and California Department of Fish & Wildlife (CDFW) protocols and directives. Surveys for special status plant species were conducted during winter months, outside the normal blooming cycle of these plant species. Follow-up plant surveys will be conducted during the March-July time period to verify the findings of the winter plant survey. The USFWS IPaC resource list and the CDFW Natural Diversity Database (CNDDB) was consulted to determine the past and current potential for special status plant or wildlife species to be present on or near the portion of Cemetery property proposed for Phase 2 development. Surveys were conducted during the week of December 18 -22, 2017. Cemetery Director Jamie Mitchum was interviewed on December 18 and gave permission for the biological staff of MHBA to conduct surveys on the Cemetery property. Forty hours of field surveys did not reveal the presence of special status plant or wildlife species within the portion of the Cemetery proposed for development. Several protected bird species including the Swainson's hawk, *Buteo Swainsonii*, and the Burrowing Owl, *Athene cunicularia*, have been recorded in trees north of the Cemetery and along the fringes of agricultural lands south of the Cemetery. Neither of these species were observed during onsite surveys; however, surveys were conducted outside of the nesting season for these birds when their presence would be easily identified. Follow-up nesting season surveys must be conducted during the March - August time period.

2. Introduction

2.1. Purpose

The National Cemetery Administration (NCA) of the United States Department of Veterans Affairs (VA) has requested the preparation of this Biological Evaluation (BE) to evaluate the potential environmental consequences of constructing Phase 2 of the Cemetery expansion. This BE has been completed pursuant to the National Environmental Policy Act (NEPA), the Council of Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), VA regulations (38 CFR 26.4a), and USFWS directives.

This Biological Evaluation was conducted by a USFWS approved wildlife biologist and botanist. This document serves to identify potential environmental impacts and recommend appropriate avoidance and minimization measures as required.
2.2. Detailed Scope-of-Services

The BE was conducted within the boundaries of the proposed Phase 2 development and within a 500 foot buffer surrounding the project (Subject Property). The Biological Evaluation was in accordance with USFWS AND CDFW standard survey protocols and included some or all of the following:

- Records review including USFWS IPaC and CNDDB databases and lists
- Consultations with regulatory agencies
- Forty hours of onsite surveys and evaluations
- Evaluation of information and preparation of the report provided herein.

2.3. Limitations, Exceptions, and Data Gaps

The scope of services performed to complete this Biological Evaluation is limited in nature. Surveys for special status plant species were conducted outside the normal blooming cycles for all plants of concern. Surveys for nesting birds and raptors were conducted outside the normal nesting period for these species. Follow-up spring and summer surveys must be conducted to address these data gaps.

2.4. Reliance

This report has been prepared for the sole benefit of Anderson Engineering of Minnesota, LLC, and the National Cemetery Administration and their assigns. The report may not be relied upon by any other person or entity without the express written consent of MHBA, Anderson Engineering of Minnesota, LLC, and/or the National Cemetery Administration with the following exception(s): None.

2.5. Biological Personnel

This assessment was conducted under the supervision of Marcus H. Bole, Senior Wildlife Biologist and Senior Wetland Scientist. The following personnel contributed to the assessment:

- Marcus H. Bole, M.S, Wildlife Biology, performed site surveys for threatened & endangered wildlife species, conducted regulatory agency coordination, provided supervision, review, and opinions/conclusions.
- Charlene J. Bole, M.S, Senior Botanist performed site surveys for threatened & endangered plant species, conducted regulatory agency coordination, provided review and opinions/conclusions.

3. Site Description

The MHBA representatives performed site observations during the time period December 18-22, 2017.
3.1. Location

The Sacramento Valley National Cemetery is located approximately 30 miles southwest of downtown Sacramento at 5810 Midway Road, Dixon, CA 95620. Phase 2 Development is located within Sections 32 & 33, Township 7 North, Range 1 East, Dixon & Allendale 7.5' USGS Quadrangles, approximately 38.4135619° North, -121.881724 West. The site is accessible via Midway Road or Batavia Road from I-80, I-505, or SR 113. The entrance is located along Midway Road.

3.2. Site and Vicinity Characteristics

The Phase 2 site is relatively flat, and it has been modified for irrigation (agricultural land) and modified for Cemetery roads, infrastructure and landscaping (Cemetery). The project area consists of 111 acres of undeveloped land consisting of ruderal grasslands and fields currently under agricultural cultivation. Approximately 15 acres of developed Cemetery property was also surveyed. Properties surrounding the Sacramento Valley National Cemetery can be described as largely agricultural, residential, and industrial. An orchard and residential dwelling exist directly north of the Cemetery. To the northwest is an industrial complex and yard used by several industrial trucking, metal fabrication, and fuel distribution companies. To the west of the Cemetery are two ranches that include residential houses and agricultural fields. Private residences and agricultural fields also exist to the south of the Cemetery. Private residences and agricultural fields exist east of the Cemetery. A significant portion of the area proposed for Phase 2 development is currently under cultivation with row crops. The Phase 2 development area is bounded by Sweeny Creek to the south and McCune Creek to the east. The two creeks are currently under jurisdiction of the Solano County Water Agency (SCWA) and are used for flood control waterways. The SCWA regularly maintain these two creeks. Consequently, the two creeks do not contain the normal "riparian" vegetation. The vegetation that is primarily found along the edges is categorized as ruderal vegetation. The purpose of this maintenance is to control the rodent population for agricultural purposes. These two creeks, whose combined area is approximately two acres, do contain water for most of the year and would fall under jurisdiction of the United States Army Corps of Engineers (USACE) and the CDFW. The Solano Irrigation District (SID) maintains two canals that border the Cemetery. The Weyland Canal flows along the northern border of the Cemetery on the south side of Midway Road. The second canal, the Kilkenny Canal, enters the Cemetery property at the northwest corner, approaches Sweeny Creek and then continues underground just south of the confluence of the two creeks. Phase 2 development will not impact either of the creeks or canals. However, a small flood plain (Zone AE) surrounds both Sweeny Creek and McCune Creek. A development set back from these flood plains will be required. The areas of ruderal non-native grasslands have been mowed and disked for fire control purposes. These areas were investigated for the presence of seasonal wetlands (vernal pools) and possible presence of ground nesting raptors (Burrowing Owls).
3.3. Current Use of the Properties

The Phase 2 project area consists of 111 acres of undeveloped land and 15 acres of developed Cemetery property.

3.4. Descriptions of Affected Environments

The developed portions of the Phase 2 project area consists of buildings and infrastructure constructed during Phase 1 development in 2006. There is no habitat or special status plants or wildlife within the developed portions of the Phase 2 project area. The primary vegetative community within the undeveloped portions of the Phase 2 development site is productive row crop. The crops being farmed in this area consists of corn, alfalfa, beans, bell peppers, and squash. The second-most dominate vegetative community is ruderal vegetation. This community is found along roadsides, creek borders and fallow, undeveloped portions of the Phase 2 project area. It is comprised of a variety of weedy plant species. The dominate vegetation in this community consist of Russian thistle, *Salsola tragus*, ripgut brome, *Bromus rigidus*, doveweed, *Eremocarpus setigerus*, prickly lettuce, *Lactuca serriola*, yellow star thistle, *Centaurea solstitialis*, wild oat, *Avena fatua*, mallow, *Malva ssp.*, curly dock, *Rumex crispus*, jimsonweed, *Datura stramonium*, and poison hemlock, *Conium maculatum*. Within the Phase 2 project area there are no native trees. Landscaped ornamental trees were observed within the developed portion of the Cemetery. Bordering the Cemetery along the north side of Midway Road are several large diameter Eucalyptus trees, *Eucalyptus ssp*. These trees support stick nests that are used by raptors during the nesting season.

3.5. Evaluation of Special Status Species

The following discussion describes the plant and animal species that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Listed and special-status species are defined as one of the following:

- Listed or proposed for listing under the state or federal Endangered Species Acts.
- Protected under other regulations (e.g., Migratory Bird Treaty Act).
- California Department of Fish and Game (CDFG) Species of Special Concern.
- Listed as species of concern by the California Native Plant Society (CNPS) or the U. S. Fish and Wildlife Service (USFWS).
- Receive consideration during environmental review under NEPA.

Table 1 contains a list of the special-status plants & wildlife species which have the potential to occur within the Phase 2 study area. This list was generated following a search of the California Natural Diversity Database (CNDDDB) for the two quads.
containing the project area (Allendale and Dixon) and those quads adjacent: Davis, Dozier, Elmira, Liberty Island, Merrit, Saxon, and Winters.

**Sensitive Habitats**

Sensitive habitats include those that are of special concern to resource agencies and those that are protected under NEPA/CEQA, Section 1600 of the California Fish and Game Code, or Section 404 of the Clean Water Act. Biologists from Marcus H. Bole & Associates conducted forty hours of field survey of the Phase 2 project area and associated 500 foot buffer zone during December, 2017. The project area was systematically surveyed to ensure total search coverage, with special attention given to identifying those portions of the project area with the potential for supporting special-status species and sensitive habitats. With the exception of two creeks and the agricultural canals/roadside ditches (dug in uplands); no sensitive habitats were identified within or near the project area.

Special-status species were considered for this analysis based on field survey results, a review of the California Natural Diversity Database (CNDDB), CNPS literature and United States Fish and Wildlife Special Status Lists. Based on the specific habitat characteristics of project area, no sensitive fish or mammal species will be impacted by this project. Reptile, bird, invertebrate and plant species of concern that have the potential to be impacted by the project are listed in Table 1 below.

**TABLE 1: LISTED AND SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE DIXON/ALLENDALE QUADS OR ADJACENT QUADS OF DAVIS, DOZIER, ELMIRA, LIBERTY ISLAND, MERRIT, SAXON, AND WINTERS.**

<table>
<thead>
<tr>
<th>Species</th>
<th>Federal *</th>
<th>State * CDFW &amp; CNPS</th>
<th>Habitat</th>
<th>Potential for Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkali milk-vetch Astragalus tener var. tener</td>
<td>None</td>
<td>State None CNPS 1B</td>
<td>Alkali playa, valley and foothill grassland, vernal pools. Microhabitat: low ground, alkali flats and flooded lands; in annual grassland or in playas or vernal pools.</td>
<td><strong>None:</strong> No habitat is present at the project site.</td>
</tr>
<tr>
<td>Adobe Lily Fritillaria pluriflora</td>
<td>None</td>
<td>State None CNPS 1B</td>
<td>Chaparral, cismontane woodland, foothill grassland. Microhabitat: usually on clay soils; sometimes serpentine.</td>
<td><strong>None:</strong> No habitat is present at the project site.</td>
</tr>
<tr>
<td><strong>Wildlife - Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giant Garter Snake (Thamnophis gigas)</td>
<td>T</td>
<td>State T</td>
<td>Freshwater marsh and low gradient streams.</td>
<td><strong>Low:</strong> Both onsite creeks provide unsuitable habitat due to clearing and lack of refugia. No evidence of this species was observed during onsite studies.</td>
</tr>
</tbody>
</table>
### Wildlife - Birds

<table>
<thead>
<tr>
<th>Wildlife Species</th>
<th>SC</th>
<th>State</th>
<th>CDFG</th>
<th>Preconstruction surveys will be accomplished.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Burrowing Owl</td>
<td>SC</td>
<td>State</td>
<td>CDFG</td>
<td>Open low-growing grasslands with suitable burrow sites.</td>
</tr>
<tr>
<td>(Athene cunicularia hypugea)</td>
<td></td>
<td>NONE</td>
<td></td>
<td>Low: Although open habitat occurs near the borders of the Cemetery, the high density of cultivated cropland, as well as lack of burrows and observation perches likely precludes presence.</td>
</tr>
<tr>
<td>Swainson's Hawk</td>
<td>MBTA</td>
<td>T</td>
<td>CDFG</td>
<td>Nests in riparian corridors and isolated mature trees. Forages in adjacent grasslands.</td>
</tr>
<tr>
<td>(Buteo swainsoni)</td>
<td></td>
<td>T</td>
<td></td>
<td>Moderate foraging: The CNDDB has listed nest sightings in the trees to the north and east of the Cemetery. No impacts to these trees are anticipated.</td>
</tr>
<tr>
<td>Other Raptors and Migratory Birds</td>
<td>MBTA</td>
<td>CSC</td>
<td></td>
<td>Forage and nest in a wide variety of habitats including riparian woodlands, annual grasslands, and wetlands.</td>
</tr>
<tr>
<td>(includes hawks, owls, songbirds, etc.)</td>
<td></td>
<td>(some)</td>
<td></td>
<td>Moderate foraging: Hawks, owls and song birds were observed foraging within the croplands on site. No nesting habitat for raptors was observed on site.</td>
</tr>
</tbody>
</table>

### Invertebrates

<table>
<thead>
<tr>
<th>Invertebrate</th>
<th>SC</th>
<th>State</th>
<th>Preconstruction surveys will be accomplished.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vernal pool fairy shrimp</td>
<td>T</td>
<td>NONE</td>
<td>Vernal pools. Astatic rain-filled pools.</td>
</tr>
<tr>
<td>(Branchinecta lynchi)</td>
<td></td>
<td></td>
<td>None: There are no vernal pools or vernal swales in the project area.</td>
</tr>
<tr>
<td>Valley elderberry longhorn beetle</td>
<td>T</td>
<td>STATE</td>
<td>Prefers to lay eggs in elderberries (Sambucus mexicana) 2-8 inches in diameter.</td>
</tr>
<tr>
<td>(Desmocerus californicus dimorphus)</td>
<td></td>
<td>NONE</td>
<td>None: Botanical surveys did not reveal the presence of elderberry shrubs in the project area.</td>
</tr>
</tbody>
</table>

### Adjacent Quads: Davis, Dozier, Elmira, Liberty Island, Merrit, Saxon, and Winters (PLANTS)

<table>
<thead>
<tr>
<th>Plant Species</th>
<th>SC</th>
<th>State</th>
<th>Preconstruction surveys will be accomplished.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suisun Marsh aster Aster lentus</td>
<td>None</td>
<td>State</td>
<td>Marshes and swamps (brackish and freshwater), endemic to the Sac/San Joaquin River Delta. Microhabitat: most often seen along ditches with phragmites, scirpus, blackberry, typha, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CNPS</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>1B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feni's milk-vetch Astragalus tener var.</td>
<td>None</td>
<td>State</td>
<td>Meadows, valley and foothill grassland. Only a few extant occurrences remain; formerly more widespread in the valley. Microhabitat: sub alkaline flatson overflow land in the central valley; usually seen in dry, adobe soil.</td>
</tr>
<tr>
<td>ferrisiae</td>
<td></td>
<td>CNPS</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>1B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkali milk-vetch Astragalus tener var.</td>
<td>None</td>
<td>State</td>
<td>Alkali playa, valley and foothill grassland, vernal pools. Microhabitat: low ground, alkali flats, and flooded lands in annual grassland or in playas or vernal pools.</td>
</tr>
<tr>
<td>tener</td>
<td></td>
<td>CNPS</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>1B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heartscale Atriplex cordulata</td>
<td>None</td>
<td>State</td>
<td>Chenopod scrub, valley and foothill grassland, meadows. Microhabitat: alkaline flats and scalds in the central valley, sandy soils.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CNPS</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>1B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brittlescale Atriplex depresa</td>
<td>None</td>
<td>State</td>
<td>Chenopod scrub, meadows, playas, valley and foothill grassland, vernal pools.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CNPS</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>1B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>B</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>San Joaquin saltbrush</td>
<td>1B</td>
<td>None</td>
<td>CNPS</td>
</tr>
<tr>
<td>Vernal pool smallscale</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Papoose tarplant</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Hispid bird's beak</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Recurved larkspur</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Dwarf downingia</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Round-leaved filaree</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Fragrant filaree</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Adobe lily</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Boggs Lake hedge-hyssop</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Carquinez goldenbush</td>
<td>None</td>
<td>State</td>
<td>CNPS</td>
</tr>
<tr>
<td>Species</td>
<td>CNPS</td>
<td>Valley and foothill grassland, vernal pools, cismontane woodland, endemic to Yolo County. Lower montane coniferous forest. Microhabitat: vernal pools and swales; adobe or alkaline soils.</td>
<td>Habitat</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Contra Costa goldfields</td>
<td>E</td>
<td>None</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Lathyrus conjugens</td>
<td>E</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Delta tule pea</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Lathyrus jepsonii var. jepsonii</td>
<td>E</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Legenere</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Legenere limosa</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Heckard’s peppergrass</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Lepidium latipes var. heckardii</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Mason’s lilaeopsis</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Lilaepsis masonii</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Delta mudwort</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Limosella subulata</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Baker’s navarretia</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Navarretia leucocephala ssp. Bakeri</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Colusa grass</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Neostapfia colusana</td>
<td>T</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>San Joaquin Valley orcutt grass</td>
<td>None</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Orcuttia inaequalis</td>
<td>T</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Showy Indian clover</td>
<td>E</td>
<td>State</td>
<td>None: No habitat is present at the project site.</td>
</tr>
<tr>
<td>Species</td>
<td>Status</td>
<td>State</td>
<td>County</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------</td>
<td>-------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Saline clover <em>Trifolium depauperatum var. hydrophilum</em></td>
<td>None</td>
<td>None</td>
<td>CNPS 1B</td>
</tr>
<tr>
<td>Crampton’s tuctoria or Solano grass <em>Tuctoria mucronata</em></td>
<td>E</td>
<td>State</td>
<td>E CNPS 1B</td>
</tr>
</tbody>
</table>

* Status Definitions

**Federal**
- E = Listed as endangered under the federal Endangered Species Act
- T = Listed as threatened under the federal Endangered Species Act
- SC = Federal special concern species (formerly Category 2 candidates)
- C = Candidate species for future listing as endangered or threatened
- MBTA = Migratory Bird Treaty Act

**State**
- E = Listed as endangered under the California Endangered Species Act
- T = Listed as threatened under the California Endangered Species Act
- CSC = California species of special concern

**CNPS (California Native Plant Society)**
- 1B = Plants rare, threatened, or endangered in California and elsewhere
- 2 = Plants rare, threatened, or endangered in California, but more common elsewhere

Source: California Department of Fish and Wildlife Natural Diversity Database; updated December, 2017

**Giant Garter Snake (*Thamnophis gigas*)**

The giant garter snake is a federal-listed threatened and state-listed threatened species. This aquatic species prefers low gradient marsh habitat. The California Natural Diversity Database does not indicate the presence of the giant garter snake on or near the Cemetery; however, the California Department of Fish & Wildlife has identified McCune and Sweeny Creeks a potentially “critical habitat” for the species. The creeks have very little habitat to support the snake due to the high level of maintenance (clearing) that takes place due to agricultural requirements. No evidence of the giant garter snake was revealed during surveys; however, the surveys were conducted during the normal hibernation period for this species. Follow-up surveys for the giant garter snake should be accomplished during the summer months when the snake would be active and more easily identified. Appropriate development set-backs from these creeks will minimize the potential to impact the giant garter snake.

**Western Burrowing Owl (*Athene cunicularia hypugea*)**

The western burrowing owl is a federal species of concern and a California species of special concern. This species inhabits open grasslands, ruderal fields, and unmaintained agricultural field margins throughout the Central Valley. Western burrowing owls nest in small mammal burrows and forage in adjacent upland habitats. Due to the highly disturbed nature of the agricultural fields and ruderal grasslands (mowed and disked) within the Cemetery property, this species is not expected to nest within the proposed Phase 2 project area. The species has been observed both south and west of the subject property and it can be assumed that the Cemetery provides foraging habitat for the burrowing owl. The “berms” along Sweeny Creek were considered potential nesting
habitat for the burrowing owl and were surveyed in accordance with California Department of Fish & Wildlife protocols. No nesting burrowing owls were observed within the survey area; however, surveys were conducted during the non-nesting season. A 30-day preconstruction nesting raptor should be accomplished if construction activities are scheduled between 15 March and 31 August. Within thirty days of actual construction, a qualified biologist should re-evaluate the site for nesting burrowing owls.

**Swainson’s Hawk (Buteo swainsoni)**

The Swainson’s hawk is a state-listed threatened species that nests along riparian corridors and in isolated trees throughout the Central Valley. Open grasslands and agricultural fields located within ten miles of the Swainson’s hawk nests constitute suitable foraging habitat for this species. The CNNDB records several nesting Swainson’s hawk sites along the northern and southeastern boundaries of the Cemetery. Several “stick nests” were observed within these trees during the surveys. Although none of the nests exhibited hawk use, the nests could provide future nesting opportunities. The historic presence of the Swainson’s hawk in these nests is a matter of record with the California Department of Fish & Wildlife. Appropriate buffers, monitoring and timing of construction activities should be implemented as mitigation measures to minimize impacts to the Swainson’s hawk nesting habitat. A 30-day preconstruction nesting raptor should be accomplished if construction activities are scheduled between 15 March and 31 August. Within thirty days of actual construction, a qualified biologist should re-evaluate the site for nesting Swainson’s hawks.

**Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)**

The valley elderberry longhorn beetle is a federal-listed threatened species. This species inhabits elderberry (Sambucus sp.) shrubs associated with riparian habitats throughout the Central Valley and foothill regions of California. Botanical evaluations did not reveal the presence of elderberry shrubs on or near the project area. Although the two creeks adjacent to the project area provide ample habitat for this shrub species, none were observed within the creek boundaries.

**Northern Hardpan Vernal Pools**

Northern hardpan vernal pools provide habitat for several special of fairy shrimp (federal-listed threatened and endangered) as well as sensitive plant species native to California. The California Department of Fish and Wildlife, Natural Diversity Data Base has identified seasonal wetland (vernal pools & swales) habitats supporting vernal pool fairy shrimp and vernal pool plants within 5 miles of the Cemetery. These relatively undisturbed habitats have specific soil and hydrological requirements that were not found in the disked and cultivated soils of the Phase 2 project area.

**4. Physical Settings Sources and Results**

The elevation of the proposed Phase 2 site is approximately 25 feet above mean sea level,
as depicted on the USGS 7.5 Minute Series Topographic Maps Dixon and Allendale. The
general topography of the subject properties slopes to the east. The subject properties are
in the Central Valley of California, which is in the Great Valley Geomorphic and
Physiographic Province (CGS 2002). The Central Valley is a large, nearly flat valley
bound by the Klamath and Trinity mountains to the north, the southern Cascade Range
and Sierra Nevada to the east, the San Emigdio and Tehachapi mountains to the south,
and the Coast Ranges and San Francisco Bay to the west. The Central Valley consists of
the Sacramento Valley in the north and the San Joaquin Valley in the south. The Central
Valley occupies a structural trough created about 65 million years ago by collision of the
Pacific and North American tectonic plates. Sediment from ocean water, river deposition,
and glacial deposition filled the trough with an approximately 6-mile-thick layer of
continental and marine sediments above rock (Authority and FRA 2004).

### Subject Property Soil Associations:

<table>
<thead>
<tr>
<th>Soil Association</th>
<th>Counties of Occurrence</th>
<th>Landform Groups</th>
<th>Soil Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Ysidro sandy loam, 0 to 2 percent slopes</td>
<td>Solano</td>
<td>Low alluvial terraces</td>
<td>Runoff is slow. Erosion is a slight hazard. Effective rooting depth is only 12 to 20 inches. Moderately well-drained.</td>
</tr>
<tr>
<td>San Ysidro sandy loam, thick surface, 0 to 2 percent slopes</td>
<td>Solano</td>
<td>Low alluvial terraces</td>
<td>Runoff is slow. Erosion is a slight hazard. Effective rooting depth is only 20 to 30 inches. Moderately well-drained.</td>
</tr>
<tr>
<td>Reiff fine sandy loam, 0 to 2 percent slopes</td>
<td>Solano</td>
<td>Low alluvial terraces</td>
<td>Runoff is slow to very slow, and erosion is a slight hazard. Well-drained soils.</td>
</tr>
<tr>
<td>Yolo loam</td>
<td>Solano</td>
<td>Low alluvial terraces</td>
<td>Runoff is slow. Erosion is a slight hazard. Well-drained soils.</td>
</tr>
</tbody>
</table>

### Geologic Information Sources:


### 5. Findings and Recommendations

Forty hours of field surveys did not reveal the presence of special status plant or wildlife species within the portion of the Cemetery proposed for development. Several protected bird species including the Swainson's hawk, *Buteo Swainsonii*, and the Burrowing Owl, *Athene cunicularia*, have been recorded in trees north of the Cemetery (within the 500 foot buffer zone study area) and along the fringes of agricultural lands south of the Cemetery. Neither of these species were observed during onsite surveys; however, surveys were conducted outside of the nesting season for these birds. Based upon our findings, MHBA makes the following recommendations.

1) Best Management Practices (BMPs) to reduce sedimentation and minimize erosion will be employed on all work sites.
2) If construction activities take place during the 15 March to 31 August time period, a 30-day preconstruction nesting raptor survey will be required. If active raptor nests are found within 500 feet of proposed construction activities, a mitigation and monitoring plan must be prepared by a qualified biologist. Trees with nesting raptors must not be disturbed until abandoned by the birds (normally after 1 September).

3) There are currently no anticipated impacts to jurisdictional wetland habitats for this project. The man-made irrigation canals and roadside ditches are controlled by weirs and are not naturally connected to the creeks. No impacts to these “other waters” are anticipated. Sweeney and McCune Creeks are jurisdictional waters. No impacts to these creeks are anticipate; however, small flood plains (Zone AE) are associated with these creeks and appropriate setbacks will be required.

4) A blooming cycle follow-up survey for special status plant species must be conducted during the March - July time period to verify the findings of the winter season surveys.

5) Follow-up surveys for the giant garter snake must be conducted during the May - October time period to verify the findings of the winter season surveys.

This concludes our biological evaluation of the 126 acre Sacramento Area National Cemetery Phase 2 Development site located in Solano County, California. If you have any questions concerning our findings please feel free to contact me directly at: Marcus H. Bole & Associates, Attn: Marcus Bole, 104 Brock Drive, Wheatland, CA 95692, phone 530-633-0117, fax 530-633-0119, email: mbole@aol.com.

Respectfully Submitted:

Charlene J. Bole, Senior Project Botanist
Marcus H. Bole & Associates

Marcus H. Bole, Senior Wildlife Biologist
Marcus H. Bole & Associates
APPENDIX A: MAPS
Vicinity Map: Sacramento Area National Cemetery, ±126 Acre Project Site, Sections 32 & 33, Township 7 North, Range 1 East (Dixon & Allendale USGS Quadrangles), Solano County, California. Center of site located approximately 38.4135619N, -121.881724W.
Habitat Surveys Conducted during December 18-22, 2017

LEGEND

Habitat Map: Sacramento Valley National Cemetery Phase 2 Expansion – 126-acre Study Area
Conducted By: Marcus H. Bole & Associates, Phone: 530-633-0117, December 18, 2017

Property located within Sections 32 & 33, Township 7 North, Range 1 East, Dixon & Allendale USGS. Quadrangles. 38.4135619°N, -121.881724°W

FIGURE 1: HABITAT MAP

- Creeks (off-site) With Narrow Floodplains (16.6-acres)
- Undeveloped Non-Native Grasses & Agricultural land (111-acres)
- Developed and Landscaped (15-acres)
### Map Unit Legend

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ca</td>
<td>Capay silty clay loam</td>
<td>166.1</td>
<td>19.7%</td>
</tr>
<tr>
<td>CeA</td>
<td>Clear Lake clay, 0 to 2 percent slopes, MLRA 17</td>
<td>65.7</td>
<td>7.8%</td>
</tr>
<tr>
<td>Ra</td>
<td>Reiff fine sandy loam</td>
<td>47.9</td>
<td>5.7%</td>
</tr>
<tr>
<td>SeA</td>
<td>San Ysidro sandy loam, 0 to 2 percent slopes</td>
<td>446.0</td>
<td>52.9%</td>
</tr>
<tr>
<td>SfA</td>
<td>San Ysidro sandy loam, thick surface , 0 to 2 percent slopes</td>
<td>91.2</td>
<td>10.8%</td>
</tr>
<tr>
<td>Sr</td>
<td>Sycamore silty clay loam</td>
<td>0.8</td>
<td>0.1%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>1.0</td>
<td>0.1%</td>
</tr>
<tr>
<td>Yr</td>
<td>Yolo loam, clay substratum</td>
<td>24.5</td>
<td>2.9%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>843.1</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

### Map Information

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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


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

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

Soil Survey Area: Solano County, California Survey Area Date: Version 11, Oct 5, 2017

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

Date(s) aerial images were photographed: Feb 4, 2012—Feb 17, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
FEMA Map: Sacramento Area National Cemetery, ±130 Acre Project Site, Sections 32 & 33, Township 7 North, Range 1 East (Dixon & Allendale USGS Quadrangles), Solano County, California. Center of site located approximately 38.4135619N, -121.881724W. 5810 Midway Road, Dixon, California.
FEMA Map: Sacramento Area National Cemetery, ±130 Acre Project Site, Sections 32 & 33, Township 7 North, Range 1 East (Dixon & Allendale USGS Quadrangles), Solano County, California. Center of site located approximately 38.4135619N, -121.881724W. 5810 Midway Road, Dixon, California.
APPENDIX B: SITE PHOTOS
SITE: Sac Valley National Cemetery
ITEM: Central Portion of Project Area
DATE: 12/18/2017
PLATE: 3
APPENDIX C: USFWS & CNDDDB
## Summary Table Report
California Department of Fish and Wildlife
California Natural Diversity Database

**Query Criteria:**
Quad IS (Dixon (3812147) OR Allendale (3812148)) AND (Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered) OR Proposed Threatened OR Candidate) OR All CNDDB element occurrences OR Delisted)

<table>
<thead>
<tr>
<th>Name (Scientific/Common)</th>
<th>CNDDB Ranks</th>
<th>Listing Status (Fed/State)</th>
<th>Other Lists</th>
<th>Elev. Range (ft.)</th>
<th>Element Occ. Ranks</th>
<th>Population Status</th>
<th>Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphibolus Californiense</td>
<td>G2G3</td>
<td>Threatened</td>
<td>CDFW WL-Watch List IUCN_VU-Vulnerable</td>
<td>50</td>
<td>1164</td>
<td>0 0 0 0 0 1 0 1 0</td>
<td>Extant</td>
</tr>
<tr>
<td>California tiger salamander</td>
<td>S2S3</td>
<td>Threatened</td>
<td></td>
<td>50</td>
<td>50</td>
<td>0 0 0 0 0 1 0 1 0</td>
<td>Extant</td>
</tr>
<tr>
<td>Astragalus Tener Var. Tener</td>
<td>G2T2</td>
<td>None</td>
<td>Rare Plant Rank - 1B.2</td>
<td>50</td>
<td>55</td>
<td>0 0 0 0 0 1 0 1 0</td>
<td>Extant</td>
</tr>
<tr>
<td>Alkali milk-witch</td>
<td>S2</td>
<td>None</td>
<td></td>
<td>50</td>
<td>50</td>
<td>0 0 0 0 0 1 0 1 0</td>
<td>Extant</td>
</tr>
<tr>
<td>Athene Cunicularia</td>
<td>G4</td>
<td>None</td>
<td>BLM_S-Sensitive CDFW SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern</td>
<td>25</td>
<td>1955</td>
<td>1 3 12 2 5 2 15 10 20</td>
<td>5</td>
</tr>
<tr>
<td>Burrowing owl</td>
<td>S3</td>
<td>None</td>
<td></td>
<td>115</td>
<td>25</td>
<td>0 0 1 0 0 0 0 0 0 1</td>
<td>Extant</td>
</tr>
<tr>
<td>Branchiognatha Lyncata</td>
<td>G3</td>
<td>Threatened</td>
<td>IUCN_VU-Vulnerable</td>
<td>25</td>
<td>763</td>
<td>0 0 2 1 0 6 5 4 9</td>
<td>Extant</td>
</tr>
<tr>
<td>Vernal pool fairy shrimp</td>
<td>S3</td>
<td>None</td>
<td></td>
<td>130</td>
<td>130</td>
<td>0 0 2 1 0 6 5 4 9</td>
<td>Extant</td>
</tr>
<tr>
<td>Buteo Swansoni</td>
<td>G5</td>
<td>None</td>
<td>BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern</td>
<td>35</td>
<td>2443</td>
<td>23 45 30 8 5 9 4 116 115</td>
<td>2 3</td>
</tr>
<tr>
<td>Swanson's hawk</td>
<td>S3</td>
<td>Threatened</td>
<td></td>
<td>120</td>
<td>120</td>
<td>23 45 30 8 5 9 4 116 115</td>
<td>2 3</td>
</tr>
<tr>
<td>Delphinium Recurvatum</td>
<td>G2?</td>
<td>None</td>
<td>Rare Plant Rank - 1B.2 BLM_S-Sensitive</td>
<td>100</td>
<td>100</td>
<td>0 0 0 0 0 1 1 0 1 0</td>
<td>Extant</td>
</tr>
<tr>
<td>Recurved larkspur</td>
<td>S2?</td>
<td>None</td>
<td></td>
<td>100</td>
<td>100</td>
<td>0 0 0 0 0 1 1 0 1 0</td>
<td>Extant</td>
</tr>
<tr>
<td>Desmocerus Californicus Dimorphus</td>
<td>G3T2</td>
<td>Threatened</td>
<td>BLM_S-Sensitive</td>
<td>55</td>
<td>271</td>
<td>0 0 0 0 0 1 0 1 0</td>
<td>Extant</td>
</tr>
<tr>
<td>Valley elderberry longhorn beetle</td>
<td>S2</td>
<td>None</td>
<td></td>
<td>55</td>
<td>55</td>
<td>0 0 0 0 0 1 0 1 0</td>
<td>Extant</td>
</tr>
<tr>
<td>Downingia Pusilla</td>
<td>GU</td>
<td>None</td>
<td>Rare Plant Rank - 2B.2 BLM_S-Sensitive</td>
<td>95</td>
<td>126</td>
<td>0 0 1 0 0 0 0 0 1 1</td>
<td>Extant</td>
</tr>
<tr>
<td>Dwarf Downingia</td>
<td>S2</td>
<td>None</td>
<td></td>
<td>95</td>
<td>95</td>
<td>0 0 1 0 0 0 0 0 1 1</td>
<td>Extant</td>
</tr>
<tr>
<td>Eulopus Leucurus</td>
<td>G5</td>
<td>None</td>
<td>BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern</td>
<td>60</td>
<td>165</td>
<td>1 1 1 0 0 0 1 2 3</td>
<td>Extant</td>
</tr>
<tr>
<td>White-tailed kite</td>
<td>S3E4</td>
<td>None</td>
<td></td>
<td>80</td>
<td>80</td>
<td>1 1 1 0 0 0 1 2 3</td>
<td>Extant</td>
</tr>
<tr>
<td>Name (Scientific/Common)</td>
<td>CNDDB Ranks</td>
<td>Listing Status (Fed/State)</td>
<td>Other Lists</td>
<td>Elev. Range (ft.)</td>
<td>Total EO's</td>
<td>Element Occ. Ranks</td>
<td>Population Status</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------</td>
<td>----------------------------</td>
<td>-------------</td>
<td>------------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Emys marmorata western pond turtle</td>
<td>G3G4 S3</td>
<td>None None</td>
<td>BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive</td>
<td>82 129</td>
<td>2 125</td>
<td>0 1 0 0 1 1 1 2 2 0 0</td>
<td></td>
</tr>
<tr>
<td>Ptilillaria pluriflora adobo-lily</td>
<td>G2G3 S2S3</td>
<td>None None</td>
<td>Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden</td>
<td>107 434 2 2</td>
<td>1 1 0 2 2 0 2 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linderiella occidentalis California linderiella</td>
<td>G2G3 S2S3</td>
<td>None None</td>
<td>IUCN_VU-Vulnerable</td>
<td>95 434 0 0 0 2 2 0 2 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navarretia leucocophala ssp. bakeri Baker's navarretia</td>
<td>G4T2 S2</td>
<td>None None</td>
<td>Rare Plant Rank - 1B.1 BLM_S-Sensitive</td>
<td>100 58 2 2 2 4 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plagiobothrys hystriculus bearded popcomflower</td>
<td>G2 S2</td>
<td>None None</td>
<td>Rare Plant Rank - 1B.1</td>
<td>100 14 0 0 0 0 1 1 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Population Status**
- Historic > 20 yr: 1
- Historic <= 20 yr: 1
- Recent Extinct: 0
- Recent Extant: 0
- Poss, Extirp.: 0
- Extirp.: 0

**Presence**
- Extant: 2
- Extirp.: 0
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as trust resources) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME
VA Sacramento Valley National Cemetery Expansion and Improvements Environmental Assessment

LOCATION
Solano County, California
DESCRIPTION

Dixon, Solano County, California

Local office

Sacramento Fish And Wildlife Office

📞 (916) 414-6600
📍 (916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

¹ Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
² NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and
Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

### Reptiles

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giant Garter Snake Thamnophis gigas</td>
<td>Threatened</td>
</tr>
<tr>
<td>No critical habitat has been designated for this species.</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/4482">https://ecos.fws.gov/ecp/species/4482</a></td>
<td></td>
</tr>
</tbody>
</table>

### Amphibians

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Red-legged Frog Rana draytonii</td>
<td>Threatened</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Tiger Salamander Ambystoma californiense</td>
<td>Threatened</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/2076">https://ecos.fws.gov/ecp/species/2076</a></td>
<td></td>
</tr>
</tbody>
</table>

### Fishes

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta Smelt Hypomesus transpacificus</td>
<td>Threatened</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a></td>
<td></td>
</tr>
</tbody>
</table>

### Insects

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Valley Elderberry Longhorn Beetle**  *Desmocerus californicus dimorphus*
There is final critical habitat for this species. Your location is outside the critical habitat.
[https://ecos.fws.gov/ecp/species/7850](https://ecos.fws.gov/ecp/species/7850)

### Crustaceans

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conservancy Fairy Shrimp</strong>  <em>Branchinecta conservatio</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/8246">https://ecos.fws.gov/ecp/species/8246</a></td>
<td></td>
</tr>
<tr>
<td><strong>Vernal Pool Fairy Shrimp</strong>  <em>Branchinecta lynchii</em></td>
<td>Threatened</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a></td>
<td></td>
</tr>
<tr>
<td><strong>Vernal Pool Tadpole Shrimp</strong>  <em>Lepidurus packardi</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td><a href="https://ecos.fws.gov/ecp/species/2246">https://ecos.fws.gov/ecp/species/2246</a></td>
<td></td>
</tr>
</tbody>
</table>

### Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

**THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.**

### Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act\(^1\) and the Bald and
Golden Eagle Protection Act\(^2\).

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The **Migratory Birds Treaty Act** of 1918.
2. The **Bald and Golden Eagle Protection Act** of 1940.

Additional information can be found using the following links:


The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to
migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

Yellow-billed Magpie  Pica nuttalli
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bred Apr 1 to Jul 31

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

**Breeding Season (●)**
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort (●)**
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data (●)**
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.
Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.
How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

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

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts
occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries
There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE R2UBHx

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions
Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberfisid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.
DELINEATION OF WATERS OF THE U.S.

Sacramento Valley National Cemetery Phase 2 Expansion
5810 Midway Road, Dixon, CA 95620

Prepared for

Department of Veterans Affairs
Office of Construction & Facilities Management
Washington DC 20001

Prepared by

Bole & Associates
Environmental Consultants

104 Brock Drive
Wheatland, CA 95692

January 31, 2018
# Table of Contents

1. Summary ...................................................................................................................... 1

2. Introduction .................................................................................................................. 1

   2.1. Purpose ................................................................................................................. 1

   2.2. Detailed Scope-of-Services .................................................................................. 2

   2.3. Wetland Delineation Personnel ............................................................................ 2

3. Site Description ............................................................................................................ 2

   3.1. Location ................................................................................................................ 2

   3.2. Site and Vicinity Characteristics .......................................................................... 3

   3.3. Current Use of the Properties ............................................................................. 3

   3.4. Descriptions of Affected Environments ............................................................... 4

   3.5. Evaluation of Sensitive Habitats .......................................................................... 4

4. Physical Settings Sources and Results ......................................................................... 4

5. Findings and Recommendations .................................................................................. 5

APPENDIX A: MAPS

APPENDIX B: SITE OBSERVATIONS PHOTOGRAPHS

APPENDIX C: DELINEATION MAP & DATA SHEETS
1. Summary

Marcus H. Bole & Associates (MHBA) has performed a Wetland Delineation of a 126 acre portion of the 232 acre Sacramento Valley National Cemetery. The current area proposed for Phase 2 development (SVNC2) consists of 15 acres of previously developed Cemetery grounds, and 111 acres consisting of ruderal grasslands and fields currently under agricultural cultivation. Phase 2 Development is located within the Sacramento Valley National Cemetery, 5810 Midway Road, Dixon, California, within Sections 32 & 33, Township 7 North, Range 1 East, Dixon & Allendale 7.5' USGS Quadrangles, approximately 38.4135619° North, -121.881724 West. Surveys for seasonal and perennial wetland habitats were conducted in accordance with guidance set forth in The Corps of Engineers Wetland Delineation Manual, 1987, Regional Supplement to the Corps of Engineers Wetland Determination Manual: Arid West Region (Version 2.0), 2008 and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual, August 2008, ERDC/CRREL TR-08-12.

Surveys were conducted during the week of December 18 -22, 2017. Cemetery Director Jamie Mitchum was interviewed on December 18 and gave permission for the wetland science staff of MHBA to conduct surveys on the Cemetery property. Fifty hours of field surveys did not reveal the presence of seasonal or perennial wetlands within the area proposed for Phase 2 development. The Phase 2 development area is bounded by Sweeny Creek to the south and McCune Creek to the east. The two creeks are currently under jurisdiction of the Solano County Water Agency (SCWA) and are used for flood control waterways. The SCWA regularly maintain these two creeks. Consequently, the two creeks do not contain the normal "riparian" vegetation. The vegetation that is primarily found along the edges is categorized as ruderal vegetation. The purpose of this high level of maintenance is to keep the rodent population down for agricultural purposes. These two creeks, whose combined area is approximately two acres, do contain water for most of the year and would fall under jurisdiction of the United States Army Corps of Engineers (USACE) and the CDFW. The Solano Irrigation District (SID) maintains two canals that border the Cemetery. The Weyland Canal flows along the northern border of the Cemetery on the south side of Midway Road. The second canal, the Kilkenny Canal, enters the Cemetery property at the northwest corner, approaches Sweeny Creek and then continues underground just south of the confluence of the two creeks. Phase 2 development will not impact either of the creeks or canals. However, a small flood plain (Zone AE) surrounds both Sweeny Creek and McCune Creek. A development set back from these flood plains will be required.

2. Introduction

2.1. Purpose

The National Cemetery Administration (NCA) of the United States Department of Veterans Affairs (VA) has requested the preparation of this Wetland Delineation to evaluate the potential environmental consequences of constructing Phase 2 of the Cemetery expansion. This wetland delineation has been completed pursuant to the
National Environmental Policy Act (NEPA), the Council of Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), VA regulations (38 CFR 26.4a), and USFWS directives.

MHBA has conducted this wetland delineation by a United States Corps of Engineers approved wildlife scientist and wetland botanist. This document serves to identify potential environmental impacts and recommend appropriate avoidance and minimization measures as required.

2.2. Detailed Scope-of-Services

The wetland delineation was conducted within the boundaries of the proposed Phase 2 development and within a 500 foot buffer surrounding the project (Subject Property). The wetland delineation was in general accordance with United States Corps of Engineers (USACE) standard survey protocols and included some or all of the following:

- Consultations with the USACE
- Fifty hours of onsite surveys and data collection
- Evaluation of information and preparation of the report and delineation map provided herein.

2.3. Wetland Delineation Personnel

This assessment was conducted under the supervision of Marcus H. Bole, Senior Wetland Scientist. The following personnel contributed to the assessment:

- Marcus H. Bole, M.S, Senior Wetland Scientist, performed site surveys for seasonal and perennial wetland habitats, drafted wetland data sheets, conducted regulatory agency coordination, provided supervision, review, and opinions/conclusions.
- Charlene J. Bole, M.S, Senior Wetland Botanist performed site surveys for seasonal and perennial wetland habitats, conducted regulatory agency coordination, provided review and opinions/conclusions.

3. Site Description

The MHBA representatives performed site observations during the time period December 18-22, 2017.

3.1. Location

The Sacramento Valley National Cemetery is located approximately 30 miles southwest of downtown Sacramento at 5810 Midway Road, Dixon, CA 95620. Phase 2 Development is within Sections 32 & 33, Township 7 North, Range 1 East, Dixon & Allendale 7.5' USGS Quadrangles, approximately 38.4135619°North, -121.881724West.
The site is accessible via Midway Road or Batavia Road from I-80, I-505, or SR 113. The entrance is located along Midway Road.

### 3.2. Site and Vicinity Characteristics

The Phase 2 site is relatively flat, and it has been modified for irrigation (agricultural land) and modified for Cemetery roads, infrastructure and landscaping (Cemetery). The project area consists of 15 acres of previously developed Cemetery grounds, and 111 acres consisting of ruderal grasslands and fields currently under agricultural cultivation. Properties surrounding the Sacramento Valley National Cemetery can be described as largely agricultural, residential, and industrial. An orchard and residential dwelling exist directly north of the Cemetery. To the northwest is an industrial complex and yard used by several industrial trucking, metal fabrication, and fuel distribution companies. To the west of the Cemetery are two ranches that include residential houses and agricultural fields. Private residences and agricultural fields also exist to the south of the Cemetery. Private residences and agricultural fields exist east of the Cemetery. A significant portion of the area proposed for Phase 2 development is currently under cultivation with row crops. The Phase 2 development area is bounded by Sweeny Creek to the south and McCune Creek to the east. The two creeks are currently under jurisdiction of the Solano County Water Agency (SCWA) and are used for flood control waterways. The SCWA regularly maintain these two creeks. Consequently, the two creeks do not contain the normal "riparian" vegetation. The vegetation that is primarily found along the edges is categorized as ruderal vegetation. The purpose of this high level of maintenance is to keep the rodent population down for agricultural purposes. These two creeks, whose combined area is approximately two acres, do contain water for most of the year and would fall under jurisdiction of the United States Army Corps of Engineers (USACE) and the CDFW. The Solano Irrigation District (SID) maintains two canals that border the Cemetery. The Weyland Canal flows along the northern border of the Cemetery on the south side of Midway Road. The second canal, the Kilkenny Canal, enters the Cemetery property at the northwest corner, approaches Sweeny Creek and then continues underground just south of the confluence of the two creeks. Phase 2 development will not impact either of the creeks or canals. However, a small floodplain (Zone AE) surrounds both Sweeny Creek and McCune Creek. A development set back from these flood plains will be required. The undeveloped, former agricultural fields, are best described as ruderal, non-native annual grasslands. These areas have been mowed and/disked for weed and fire control purposes. These areas were investigated for the presence of seasonal wetlands (vernal pools). No evidence of vernal pools or vernal swales were revealed within the 111 acres of undeveloped land, or within the 15 acres of developed land associated with the Cemetery.

### 3.3. Current Use of the Properties

The Phase 2 project area consists of 15 acres of previously developed Cemetery grounds, and 111 acres consisting of ruderal grasslands and fields currently under agricultural cultivation.
Descriptions of Affected Environments

The developed portions of the Phase 2 project area consists of buildings and infrastructure constructed during Phase 1 development in 2006. There are no federal jurisdictional wetland habitats within the developed portions of the Phase 2 project area.

The primary vegetative community within the Phase 2 development site is productive row crop. The crops being farmed in this area consists of corn, alfalfa, beans, bell peppers, and squash. The second-most dominate vegetative community is ruderal vegetation. This community is found along roadsides, creek borders and fallow, undeveloped portions of the Phase 2 project area. It is comprised of a variety of weedy plant species. The dominate vegetation in this community consist of Russian thistle, *Salsola tragus*, ripgut brome, *Bromus rigidus*, doverweed, *Eremocarpus setigerus*, prickly lettuce, *Lactuca serriola*, yellow star thistle, *Centaurea solstitialis*, wild oat, *Avena fatua*, mallow, *Malva ssp.*, curly dock, *Rumex crispus*, jimsonweed, *Datura stramonium*, and poison hemlock, *Conium maculatum*. Within the Phase 2 project area there are no native trees. Landscaped ornamental trees were observed within the developed portion of the Cemetery. Bordering the Cemetery along the north side of Midway Road are several large diameter Eucalyptus trees, *Eucalyptus ssp.*

### 3.5. Evaluation of Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies and those that are protected under NEPA/CEQA, Section 1600 of the California Fish and Game Code, or Section 404 of the Clean Water Act. Biologists from Marcus H. Bole & Associates conducted forty hours of field survey of the Phase 2 project area and associated 500 foot buffer zone during December, 2017. The project area was systematically surveyed to ensure total search coverage, with special attention given to identifying those portions of the project area with the potentially sensitive habitats. With the exception of two off-site creeks bordering the project area no sensitive habitats were identified within or near the project area.

### 4. Physical Settings Sources and Results

The elevation of the proposed Phase 2 site is approximately 25 feet above mean sea level, as depicted on the U.S.G.S. 7.5 Minute Series Topographic Maps Dixon and Allendale. The general topography of the subject properties slopes to the east. The subject properties are in the Central Valley of California, which is in the Great Valley Geomorphic and Physiographic Province (CGS 2002). The Central Valley is a large, nearly flat valley bound by the Klamath and Trinity mountains to the north, the southern Cascade Range and Sierra Nevada to the east, the San Emigdio and Tehachapi mountains to the south, and the Coast Ranges and San Francisco Bay to the west. The Central Valley consists of the Sacramento Valley in the north and the San Joaquin Valley in the south. The Central Valley occupies a structural trough created about 65 million years ago by collision of the Pacific and North American tectonic plates. Sediment from ocean water, river deposition, and glacial deposition filled the trough with an approximately 6-mile-
thick layer of continental and marine sediments above rock (Authority and FRA 2004).

**Subject Property Soil Associations:**

<table>
<thead>
<tr>
<th>Soil Association</th>
<th>Counties of Occurrence</th>
<th>Landform Groups</th>
<th>Soil Characterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Ysidro sandy loam 0 to 2 percent slopes</td>
<td>Solano</td>
<td>Low alluvial terraces</td>
<td>Runoff is slow. Erosion is a slight hazard. Effective rooting depth is only 12 to 20 inches. Moderately well-drained.</td>
</tr>
<tr>
<td>San Ysidro sandy loam, thick surface, 0 to 2 percent slopes</td>
<td>Solano</td>
<td>Low alluvial terraces</td>
<td>Runoff is slow. Erosion is a slight hazard. Effective rooting depth is only 20 to 30 inches. Moderately well-drained.</td>
</tr>
<tr>
<td>Reiff fine sandy loam, 0 to 2 percent slopes</td>
<td>Solano</td>
<td>Low alluvial terraces</td>
<td>Runoff is slow to very slow, and erosion is a slight hazard. Well-drained soils.</td>
</tr>
<tr>
<td>Yolo loam</td>
<td>Solano</td>
<td>Low alluvial terraces</td>
<td>Runoff is slow. Erosion is a slight hazard. Well-drained soils.</td>
</tr>
</tbody>
</table>

**Geologic Information Sources:**


5. **Findings and Recommendations**

No wetland habitats were found within the 126 acre area proposed for Phase 2 development (SVNC2). Both Sweeny Creek to the south of the project area (off-site) and McCune Creek to the east of the project (off-site) support emergent wetland habitat and are jurisdictional Waters of the U.S as follows:

**Jurisdictional Waters of the United States Adjacent (Off-Site) to Project Area**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Area (Square Ft/Acres)</th>
<th>Potential Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>McCune Creek</td>
<td>225,000/5.1</td>
<td>None</td>
</tr>
<tr>
<td>Sweeney Creek</td>
<td>500,500/11.5</td>
<td>None</td>
</tr>
<tr>
<td>TOTAL</td>
<td>725,500/16.6</td>
<td></td>
</tr>
</tbody>
</table>

Based upon our findings, MHBA makes the following recommendations.

1) Best Management Practices (BMPs) to reduce sedimentation and minimize erosion will be employed on all work sites.

2) There are currently no anticipated impacts to jurisdictional wetland habitats for this project. The man-made irrigation canals and roadside ditches are controlled by weirs and are not naturally connected to the creeks. Impacts to these non-jurisdictional features would not require permits or other authorizations. Sweeny and McCune Creeks are off-
site jurisdictional waters. No impacts to these creeks are anticipate; however, small flood plains (Zone AE) are associated with these creeks and appropriate setbacks will be required.

This concludes our wetland delineation of the 126 acre Sacramento Area National Cemetery Phase 2 Development site and adjacent 500 foot buffer located in Solano County, California. If you have any questions concerning our findings please feel free to contact me directly at: Marcus H. Bole & Associates, Attn: Marcus Bole, 104 Brock Drive, Wheatland, CA 95692, phone 530-633-0117, fax 530-633-0119, email: mbole@aol.com.

Respectfully Submitted:

Charlene J. Bole, Wetland Botanist
Marcus H. Bole & Associates

Marcus H. Bole, Senior Wetland Scientist
Marcus H. Bole & Associates
APPENDIX A: MAPS
Vicinity Map: Sacramento Area National Cemetery, ±126 Acre Project Site, Sections 32 & 33, Township 7 North, Range 1 East (Dixon & Allendale USGS Quadrangles), Solano County, California. Center of site located approximately 38.4135619N, -121.881724W.
### Map Unit Legend

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ca</td>
<td>Capay silty clay loam</td>
<td>166.1</td>
<td>19.7%</td>
</tr>
<tr>
<td>CeA</td>
<td>Clear Lake clay, 0 to 2 percent slopes, MLRA 17</td>
<td>65.7</td>
<td>7.8%</td>
</tr>
<tr>
<td>Ra</td>
<td>Reiff fine sandy loam</td>
<td>47.9</td>
<td>5.7%</td>
</tr>
<tr>
<td>SeA</td>
<td>San Ysidro sandy loam, 0 to 2 percent slopes</td>
<td>446.0</td>
<td>52.9%</td>
</tr>
<tr>
<td>SfA</td>
<td>San Ysidro sandy loam, thick surface, 0 to 2 percent slopes</td>
<td>91.2</td>
<td>10.8%</td>
</tr>
<tr>
<td>Sr</td>
<td>Sycamore silty clay loam</td>
<td>0.8</td>
<td>0.1%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>1.0</td>
<td>0.1%</td>
</tr>
<tr>
<td>Yr</td>
<td>Yolo loam, clay substratum</td>
<td>24.5</td>
<td>2.9%</td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>843.1</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

### MAP INFORMATION

The soil surveys that comprise each AOI were mapped at 1:24,000.

**Warning:** Soil Map may not be valid at this scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

**Source of Map:** Natural Resources Conservation Service Web Soil Survey URL: [www.nrcs.usda.gov](http://www.nrcs.usda.gov)

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

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

**Soil Survey Area:** Solano County, California

**Survey Area Data:** Version 11, Oct 5, 2017

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

Dates aerial images were photographed: Feb 4, 2012—Feb 17, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
FEMA Map: Sacramento Area National Cemetery, ±130 Acre Project Site, Sections 32 & 33, Township 7 North, Range 1 East (Dixon & Allendale USGS Quadrangles), Solano County, California. Center of site located approximately 38.4135619N, -121.881724W. 5810 Midway Road, Dixon, California.
FEMA Map: Sacramento Area National Cemetery, ±130 Acre Project Site, Sections 32 & 33, Township 7 North, Range 1 East (Dixon & Allendale USGS Quadrangles), Solano County, California. Center of site located approximately 38.4135619N, -121.881724W. 5810 Midway Road, Dixon, California.
APPENDIX B: SITE PHOTOS
SITE: Sac Valley National Cemetery
ITEM: Eastern Portion of Project Area
DATE: 12/18/2017
PLATE: 1
SITE: Sac Valley National Cemetery
ITEM: Southern Portion of Project Area
DATE: 12/18/2017
PLATE: 2
SITE: Sac Valley National Cemetery
ITEM: Central Portion of Project Area
DATE: 12/18/2017
PLATE: 3
SITE: Sac Valley National Cemetery
ITEM: Northern Portion of Project Area
DATE: 12/18/2017
PLATE: 4
SITE: Sac Valley National Cemetery
ITEM: Developed Portion of Project Area
DATE: 12/18/2017
PLATE: 5
APPENDIX C: DELINEATION MAP AND DATA SHEETS
LEGEND

USACE Jurisdictional Delineation: Sacramento Valley National Cemetery Phase 2 Expansion
Conducted By: Marcus H. Bole & Associates, Phone: 530-633-0117, December 18, 2017
Property located within Sections 32 & 33, Township 7 North, Range 1 East, Dixon & Allendale USGS. Quadrangles. 38.4135619°N, -121.881724°W

WETLAND STUDY AREA (126-ACRES)  Creeks With Floodplains  Data Points

FIGURE 1: DELINEATION MAP
**WETLAND DETERMINATION DATA FORM – Arid West Region**

**Project/Site:** SAC VALLEY NC Phase 2  
**City/County:** Solano  
**Sampling Date:** 2/18/2017

**Applicant/Owner:** NASA CEMETERY ADMINISTRATION - VA  
**State:** CA  
**Sampling Point:** #1

**Investigator(s):** N. Bole, C. Bole  
**Section, Township, Range:** 32/33 T 72 N R 1 E Dixon, Mendele

**Landform (hillslope, terrace, etc.):** TERRACE  
**Local relief (concave, convex, none):** CONCAVE  
**Slope (%):** 0 - 1%

**Subregion (LRR):** LRR - C  
**Lat:** 38.41647°N  
**Long:** 121.80557°W  
**Datum:** NAVD

**Soil Map Unit Name:** Reif fine sandy loam (Ra)  
**NW classification:**

**Remarks:**

**SUMMARY OF FINDINGS**

- Attach site map showing sampling point locations, transects, important features, etc.

**Hydrophytic Vegetation Present?** Yes Yes No

**Hydric Soil Present?** Yes Yes No

**Wetland Hydrology Present?** Yes Yes No

**Remarks:** Sample taken along banks of McCune Creek

---

**VEGETATION**

- Use scientific names of plants.

<table>
<thead>
<tr>
<th>Stratum (Plot size: ________)</th>
<th>Absolute % Cover</th>
<th>Dominant Indicator Species?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tree Stratum</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. <strong>NONE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Sapling/Shrub Stratum** (Plot size: ________) | | |
| 1. **NONE** | | |
| 2. | | |
| 3. | | |
| 4. | | |
| **Total Cover** | | |

| **Herb Stratum** (Plot size: ________) | | |
| 1. *Cyperus prostratus* | 20 | Y | FACW |
| 2. *Carex ssp* | 30 | Y | OBL |
| 3. *Galium aparine* | 10 | N | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| **Total Cover** | | | |

| **Woody Vine Stratum** (Plot size: ________) | | |
| 1. **NONE** | | |
| 2. | | |
| **Total Cover** | | |

- **% Bare Ground in Herb Stratum:** 40
- **% Cover of Biotic Crust:**

**Dominance Test worksheet:**

- Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
- Total Number of Dominant Species Across All Strata: 2 (B)
- Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (AB)

**Prevalence Index worksheet:**

- Total % Cover of: 
  - OBL species: $x_1 = $ 
  - FACW species: $x_2 = $ 
  - FAC species: $x_3 = $ 
  - FACU species: $x_4 = $ 
  - UPL species: $x_5 = $ 
- Column Totals: (A) (B)

- Prevalence Index = $B/A =$

**Hydrophytic Vegetation Indicators:**

- Dominance Test is >50%
- Prevalence Index is ≤3.0
- Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation* (Explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes X No

**Remarks:** McCune creek is off site, adjacent to project area

---

US Army Corps of Engineers  
Arid West – Version 2.0
**SOIL**

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Color (moist)</th>
<th>%</th>
<th>Redox Features Color (moist)</th>
<th>%</th>
<th>Type'</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td></td>
<td>100</td>
<td>10YR 3/3</td>
<td>10</td>
<td>RM</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 4Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Hist (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR C)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

**Indicators for Problematic Hydric Soils:**

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F16)
- Red Parent Material (T92)
- Other (Explain in Remarks)

**Restrictive Layer (if present):**

- Type: __________________________
- Depth (inches): ____________________
- Remarks: __________________________

**Wetland Hydrology Indicators:**

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

**Secondary Indicators (2 or more required):**

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (C3)
- FAC-Neutral Test (D5)

**Field Observations:**

<table>
<thead>
<tr>
<th>Surface Water Present?</th>
<th>Yes</th>
<th>No</th>
<th>Depth (inches):</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Table Present?</td>
<td>Yes</td>
<td>No</td>
<td>Depth (inches):</td>
<td></td>
</tr>
<tr>
<td>Saturation Present?</td>
<td>Yes</td>
<td>No</td>
<td>Depth (inches):</td>
<td></td>
</tr>
</tbody>
</table>

**Wetland Hydrology Present?** Yes / No

**Remarks:**

**HYDROLOGY**

**US Army Corps of Engineers**

Arid West – Version 2.0
### WETLAND DETERMINATION DATA FORM – Arid West Region

**Project/Site:** SAC VALLEY NC Phase 2  
**City/County:** SLOANE  
**Sampling Date:** 2/18/2017

**Applicant/Owner:** NA  
**State:** CA  
**Investigator(s):** N. BOLE, C. BOLE  
**Section, Township, Range:** 32/33 T 7 N, R 4 E, Division 2

**Landform:** Terrace  
**Local relief (concave, convex, none):** None  
**Slope (%):** 0-1%  
**Subregion (LRR):** 1 RR-C  
**Lat:** 38.4115,37°N  
**Long:** -121.8710,36°W  
**Datum:** NAD

**Soil Map Unit Name:** Ryefield fine sandy loam (Rh)  
**NWM classification:**

---

**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ✓ No  
(If no, explain in Remarks.)

**Are Vegetation**, **Soil**, **or Hydrology** significantly disturbed?  
**Are "Normal Circumstances" present?** Yes ✓ No

**Are Vegetation**, **Soil**, **or Hydrology** naturally problematic?  
(If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ✓ No</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ✓ No</th>
</tr>
</thead>
</table>

**Remarks:**

### VEGETATION – Use scientific names of plants.

**Tree Stratum** (Plot size: _________)  
<table>
<thead>
<tr>
<th>Absolute % Cover</th>
<th>Dominant Indicator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>NONE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover**

---

**Sapling/Shrub Stratum** (Plot size: _________)  
<table>
<thead>
<tr>
<th>Absolute % Cover</th>
<th>Dominant Indicator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>NONE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover**

---

**Herb Stratum** (Plot size: _________)  
<table>
<thead>
<tr>
<th>Absolute % Cover</th>
<th>Dominant Indicator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Sium maculatum</em></td>
<td>40%</td>
<td>Y</td>
</tr>
<tr>
<td>2. <em>Prostratus</em></td>
<td>20%</td>
<td>Y</td>
</tr>
<tr>
<td>3. <em>Cynodon dactylon</em></td>
<td>20%</td>
<td>Y</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover**

---

**Woody Vine Stratum** (Plot size: _________)  
<table>
<thead>
<tr>
<th>Absolute % Cover</th>
<th>Dominant Indicator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>NONE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover**

---

**% Bare Ground in Herb Stratum** 20%  
**% Cover of Biotic Crust**

**Remarks:**  
Graded area, maintained by cemetery.

---

**Hydrophytic Vegetation Indicators:**
- Dominance Test is >50%
- Prevalence Index is ≤3.0
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

**Hydrophytic Vegetation Present?** Yes ✓ No

---

US Army Corps of Engineers  
Arid West – Version 2.0
## SOIL

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>2.5YR 5/2 10G</td>
<td>None</td>
</tr>
</tbody>
</table>

**Texture:** Fine. Loam

**Remarks:**

---

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histisol (A1)</td>
<td>Sandy Redox (S5)</td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td>Stripped Matrix (S6)</td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td>Loamy Mucky Mineral (F1)</td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td>Loamy Gleyed Matrix (F2)</td>
</tr>
<tr>
<td>Stratified Layers (A5) (LRR C)</td>
<td>Depleted Matrix (F3)</td>
</tr>
<tr>
<td>1 cm Muck (A9) (LRR D)</td>
<td>Redox Dark Surface (F6)</td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td>Depleted Dark Surface (F7)</td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td>Redox Depressions (F8)</td>
</tr>
<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td>Vernal Pools (F9)</td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
</tr>
</tbody>
</table>

**Restrictive Layer (if present):**

- **Type:**
- **Depth (inches):**
- **Remarks:**

**Hydric Soil Present? Yes  No √**

---

## HYDROLOGY

**Wetland Hydrology Indicators:**

<table>
<thead>
<tr>
<th>Primary Indicators (minimum of one required; check all that apply)</th>
<th>Secondary Indicators (2 or more required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water (A1)</td>
<td>Salt Crust (B11)</td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td>Biotic Crust (B12)</td>
</tr>
<tr>
<td>Saturation (A3)</td>
<td>Aquatic Invertebrates (B13)</td>
</tr>
<tr>
<td>Water Marks (B1) (Nonriverine)</td>
<td>Hydrogen Sulfide Odor (C1)</td>
</tr>
<tr>
<td>Sediment Deposits (B2) (Nonriverine)</td>
<td>Oxidized Rhizospheres along Living Roots (C3)</td>
</tr>
<tr>
<td>Drift Deposits (B3) (Nonriverine)</td>
<td>Presence of Reduced Iron (C4)</td>
</tr>
<tr>
<td>Surface Soil Cracks (B6)</td>
<td>Recent Iron Reduction in Tilled Soils (C6)</td>
</tr>
<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td>Thin Muck Surface (C7)</td>
</tr>
<tr>
<td>Water-Stained Leaves (B9)</td>
<td>Other (Explain in Remarks)</td>
</tr>
</tbody>
</table>

**Field Observations:**

<table>
<thead>
<tr>
<th>Surface Water Present?</th>
<th>Yes  No √  Depth (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Table Present?</td>
<td>Yes  No √  Depth (inches):</td>
</tr>
<tr>
<td>Saturation Present?</td>
<td>Yes  No √  Depth (inches):</td>
</tr>
</tbody>
</table>

**Wetland Hydrology Present? Yes  No √**

**Remarks:**

US Army Corps of Engineers  Arid West – Version 2.0
WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SAC VALLEY NC Phase 2
City/County: Solano
Applicant/Owner: NATL CEMETARY ADMINISTRATION – VA
State: CA
Sampling Date: 2/18/2017

Investigator(s): K. BOLE, C. BOLE
Section, Township, Range: 32/33 T 75 N, R 16 E, Dixon/Hendale
Landform (hillslope, terrace, etc.): TERRACE
Subregion (LRR): LRR-C

Climate / Hydrologic conditions on the site typical for this time of year? Yes ___ No ___ (If no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are “Normal Circumstances” present? Yes ___ No ___
Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No ___ Is the Sampled Area within a Wetland? Yes ___ No ___

Remarks:
Sample taken along banks of Sweeney Creek

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: _________)</th>
<th>Absolute % Cover</th>
<th>Dominant Indicator Species?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NONE</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>2.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>3.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>4.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>Sample/Shrub Stratum (Plot size: _________)</td>
<td>= Total Cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. NONE</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>2.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>3.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>4.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>Herb Stratum (Plot size: _________)</td>
<td>= Total Cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CYPRESS CRAGROSTIS</td>
<td>30</td>
<td>Y</td>
<td>FACW</td>
</tr>
<tr>
<td>2. CYPRESS CRAGROSTIS</td>
<td>10</td>
<td>Y</td>
<td>FACW</td>
</tr>
<tr>
<td>3. PHALARIS ARUNDINACEA</td>
<td>20</td>
<td>Y</td>
<td>OBL</td>
</tr>
<tr>
<td>4. CONIUM MACULATUM</td>
<td>20</td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>5.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>6.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>7.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>8.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>Woody Vine Stratum (Plot size: _________)</td>
<td>= Total Cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. NONE</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
<tr>
<td>2.</td>
<td>[Number]</td>
<td>[Species]</td>
<td>[OBL, FACW, or FAC]</td>
</tr>
</tbody>
</table>

Hydrophytic Vegetation Indicators:
- Dominance Test is >50%
- Prevalence Index is ≤3.0
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Remarks:
Sweeney creek is offsite, adjacent to project area
## Profile Description

(Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Description</th>
<th>Redox Features</th>
<th>Type</th>
<th>Location</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>10 yr. old</td>
<td></td>
<td></td>
<td></td>
<td>Sandy</td>
<td>Loam</td>
</tr>
</tbody>
</table>

1. **Type**: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.
2. **Location**: PL=Pore Lining, M=Matrix.

### Hydric Soil Indicators

- Histosol (A1)
- Histic Epipedon (A2)
- Black Hist (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 1 cm Muck (A9)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

#### Restrictive Layer (if present):

- **Type**: 
- **Depth (inches)**: 

#### Hydric Soil Present?

- Yes ✓
- No ___

### HYDROLOGY

#### Wetland Hydrology Indicators

**Primary Indicators (minimum of one required; check all that apply)**

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B6)

**Secondary Indicators (2 or more required)**

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

#### Field Observations

- **Surface Water Present?** Yes ✓ No ___ Depth (inches): 
- **Water Table Present?** Yes ✓ No ___ Depth (inches): 
- **Saturation Present?** Yes ✓ No ___ Depth (inches): (Includes capillary fringe)

**Wetland Hydrology Present?** Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

**Remarks:**
WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SAC VALLEY NC Phase 2
City/County: Solano
State: CA
Sampling Date: 2/18/2017

Applicant/Owner: NATL CEMETERY ADMINISTRATION – VA
Investigator(s): H. BOLE, C. BOLE
Section, Township, Range: 32/33 T4N R1W, Dixon/Handale
Landform (hillslope, terrace, etc.): TERRACE
Local relief (concave, convex, none): NONE
Slope (%): 0-1%

Subregion (LRR): LRR-C
Lat: 38.41051°N
Long: -121.82196°W
Datum: NAD

Soil Map Unit Name: SAN Ysidro Sandy loam 0-2% slope (SCA)
NW classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ___ (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ___ No ___

Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No __
Hydric Soil Present? Yes ___ No __
Wetland Hydrology Present? Yes ___ No __

is the Sampled Area within a Wetland? Yes ___ No __

Remarks: Area has been graded and prepared for spring planting

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: ________)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NONE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: ________)</th>
<th>= Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NONE</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: ________)</th>
<th>= Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bromus hordeaceus</td>
<td>40 ☑ FACU</td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: ________)</th>
<th>= Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NOW</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

Remarks:
Sample taken in semi-fallow (pre-planting) A & B fields ruderal grasses

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)
Total Number of Dominant Species Across All Strata: ______ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species x1 =
FACW species x2 =
FAC species x3 =
FACU species x4 =
UPL species x5 =
Column Totals: (A) (B)
Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
Dominance Test is >50%
Prevalence Index is ≤3.0¹
Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Remarks:

US Army Corps of Engineers Arid West – Version 2.0
**SOIL**

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>10 YR G3</td>
<td>NONE</td>
</tr>
</tbody>
</table>

- **Type:** C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.
- **Texture:** Pine Sandy Loam

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td>Sandy Redox (S5)</td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td>Stripped Matrix (S6)</td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td>Loamy Mucky Mineral (F1)</td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td>Loamy Gleyed Matrix (F2)</td>
</tr>
<tr>
<td>Stratified Layers (A5)</td>
<td>Depleted Matrix (F3)</td>
</tr>
<tr>
<td>1 cm Muck (A6)</td>
<td>Redox Dark Surface (F6)</td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td>Depleted Dark Surface (F7)</td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td>Redox Depressions (F8)</td>
</tr>
<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td>Vernal Pools (F9)</td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
</tr>
</tbody>
</table>

**Restrictive Layer (if present):**

- **Type:**
- **Depth (inches):**

**Hydric Soil Present?** Yes No ✓

**Remarks:**

### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one required; check all that apply):**

<table>
<thead>
<tr>
<th>Indicator (A)</th>
<th>Indicator (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water (A1)</td>
<td>Salt Crust (B11)</td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td>Biotic Crust (B12)</td>
</tr>
<tr>
<td>Saturation (A3)</td>
<td>Aquatic Invertebrates (B13)</td>
</tr>
<tr>
<td>Water Marks (B1) (Nonriverine)</td>
<td>Hydrogen Sulfide Odor (C1)</td>
</tr>
<tr>
<td>Sediment Deposits (B2) (Nonriverine)</td>
<td>Oxidized Rhizospheres along Living Roots (C3)</td>
</tr>
<tr>
<td>Drift Deposits (B3) (Nonriverine)</td>
<td>Presence of Reduced Iron (C4)</td>
</tr>
<tr>
<td>Surface Soil Cracks (B6)</td>
<td>Recent Iron Reduction in Tilled Soils (C6)</td>
</tr>
<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td>Thin Muck Surface (C7)</td>
</tr>
<tr>
<td>Water-Stained Leaves (B9)</td>
<td>Other (Explain in Remarks)</td>
</tr>
</tbody>
</table>

**Secondary Indicators (2 or more required):**

<table>
<thead>
<tr>
<th>Indicator (A)</th>
<th>Indicator (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Marks (B1) (Riverine)</td>
<td>Sediment Deposits (B2) (Riverine)</td>
</tr>
<tr>
<td>Drift Deposits (B5) (Riverine)</td>
<td>Drainage Patterns (B10)</td>
</tr>
<tr>
<td>Dry-Season Water Table (C2)</td>
<td>Crayfish Burrows (C8)</td>
</tr>
<tr>
<td>Saturation Visible on Aerial Imagery (C9)</td>
<td>Shallow Aquitard (D3)</td>
</tr>
<tr>
<td>FAC-Neutral Test (D5)</td>
<td></td>
</tr>
</tbody>
</table>

**Field Observations:**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
<th>Depth (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Present?</td>
<td>Yes</td>
<td>No ✓</td>
<td></td>
</tr>
<tr>
<td>Water Table Present?</td>
<td>Yes</td>
<td>No ✓</td>
<td></td>
</tr>
<tr>
<td>Saturation Present?</td>
<td>Yes</td>
<td>No ✓</td>
<td></td>
</tr>
</tbody>
</table>

**Wetland Hydrology Present?** Yes No ✓

**Remarks:**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SAC VALLEY NC Phase 2  City/County: Solano  Sampling Date: 2/18/2017
Applicant/Owner: NAT’L CEMETERY ADMINISTRATION - VA  State: CA  Sampling Point: H 5
Investigator(s): M. BOLE, C. BOLE  Section, Township, Range: 32/33 T 7 N, R 1 E, Dixon/Heald
Landform (hillslope, terrace, etc.): TERRACE  Local relief (concave, convex, none): NONE  Slope (%): 0-1%
Subregion (LRR): H 5  Lat: 38.41070°N  Long: 121.87204°W  Datum: NAD
Soil Map Unit Name: REIFF ERENFORD 10ac (RA)  NWM classification: ________

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation ______ Soil ______ or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation ______ Soil ______ or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Remarks:

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Species</th>
<th>% Cover</th>
<th>Dominant Indicator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Stratum (Plot size: ______)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Sapling/Shrub Stratum (Plot size: ______) |        |         |        |        |
| 1.                                  | N/A    |         |        |        |
| 2.                                  |        |         |        |        |
| 3.                                  |        |         |        |        |
| 4.                                  |        |         |        |        |

| Herb Stratum (Plot size: ______) |        |         |        |        |
| 1.                                | AVENA FATUA | 15 | Y | UPLe |
| 2.                                | CYNODON DALCYTON | 15 | Y | FACU |
| 3.                                |            |     |    |      |
| 4.                                |            |     |    |      |
| 5.                                |            |     |    |      |
| 6.                                |            |     |    |      |
| 7.                                |            |     |    |      |
| 8.                                |            |     |    |      |

| Woody Vine Stratum (Plot size: ______) |        |         |        |        |
| 1.                                  |        |         |        |        |
| 2.                                  |        |         |        |        |

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th>70</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
</table>

Remarks:

AREA GRADED AND MAINTAINED BY THE CEMETERY
### Soil Sampling Point

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type¹</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>2.5%</td>
<td>57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A6) (LRR D)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

**Hydric Soil Present?** Yes ☑ No

**Hydric Soil Present?**

**Restrictive Layer (if present):**

- Type:
- Depth (inches): __________________

**Remarks:**

---

### Hydrology

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B69)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water Marks (B1) (Riverine)
- Sediment Deposits (B2) (Riverine)
- Drift Deposits (B3) (Riverine)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C6)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (C3)
- FAC-Neutral Test (D5)

**Field Observations:**

- Surface Water Present? Yes ☑ No
- Water Table Present? Yes ☑ No
- Saturation Present? Yes ☑ No

**Wetland Hydrology Present?** Yes ☑ No

**Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:**

**Remarks:**

---

US Army Corps of Engineers

Arid West – Version 2.0
**WETLAND DETERMINATION DATA FORM – Arid West Region**

**Project/Site:** SAC VALLEY NC Phase 2

**City/County:** Solano

**Investigator(s):** N. Bole, C. Bole

**Sampling Date:** 2/18/2017

**Applicant/Owner:** NATL CEMETARY ADMINISTRATION – VA

**State:** CA

**Landform (hillslope, terrace, etc.):** Terrace

**Local relief (concave, convex, none):** None

**Slope (%):** 0-1%

**Subregion (LRR):** LRR-C

**Lat:** 38.411482°N

**Long:** -121.679440°W

**Datum:** NAD

**Soil Map Unit Name:** San Ysidro Sandy Loam, Thin Surface 0-2%

**NWRI classification:**

---

**SUMMARY OF FINDINGS** – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Remarks:**

---

**VEGETATION** – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: __________)</th>
<th>Absolute % Cover</th>
<th>Dominant Indicator Species?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>NONE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: __________)</th>
<th>% Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sporobolus quitensis</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: __________)</th>
<th>% Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Centaurea solstitialis</td>
<td>40</td>
</tr>
<tr>
<td>2. Lactuca multiflora</td>
<td>10</td>
</tr>
<tr>
<td>3. Avena sativa</td>
<td>20</td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: __________)</th>
<th>% Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>NONE</strong></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

**Dominance Test worksheet:**

<table>
<thead>
<tr>
<th>Number of Dominant Species That Are OBL, FACW, or FAC:</th>
<th>1 (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Dominant Species Across All Strata:</td>
<td>4 (B)</td>
</tr>
<tr>
<td>Percent of Dominant Species That Are OBL, FACW, or FAC:</td>
<td>20 (A/B)</td>
</tr>
</tbody>
</table>

**Prevalence Index worksheet:**

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species</td>
<td>x 1 =</td>
</tr>
<tr>
<td>FACW species</td>
<td>x 2 =</td>
</tr>
<tr>
<td>FAC species</td>
<td>x 3 =</td>
</tr>
<tr>
<td>FACU species</td>
<td>x 4 =</td>
</tr>
<tr>
<td>UPL species</td>
<td>x 5 =</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Column Totals: (A)</th>
<th>(B)</th>
</tr>
</thead>
</table>

**Prevalence Index = B/A =**

**Hydrophytic Vegetation Indicators:**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominance Test is &gt;50%</td>
<td></td>
</tr>
<tr>
<td>Prevalence Index is ≤3.01</td>
<td></td>
</tr>
<tr>
<td>Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)</td>
<td></td>
</tr>
<tr>
<td>Problematic Hydrophytic Vegetation (Explain)</td>
<td></td>
</tr>
</tbody>
</table>

---

**Remarks:**

---

US Army Corps of Engineers

Arid West – Version 2.0
### SOIL

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Color (moist)</th>
<th>%</th>
<th>Redox Features</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>Loam</td>
<td>#</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sandy Loam</td>
<td></td>
</tr>
</tbody>
</table>

1. **Type:** C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.
2. **Location:** PL=Pore Lining, M=Matrix.

#### Hydric Soil Indicators:
- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 1 cm Muck (A6)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

#### Restrictive Layer (if present):
- Type:
- Depth (inches):
- Hydric Soil Present? Yes □ No □
- Remarks:

#### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one required; check all that apply):**
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

**Secondary Indicators (2 or more required):**
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

**Field Observations:**
- Surface Water Present? Yes □ No □ Depth (inches): ______
- Water Table Present? Yes □ No □ Depth (inches): ______
- Saturation Present? Yes □ No □ Depth (inches): ______
- Wetland Hydrology Present? Yes □ No □

**Remarks:**

---

US Army Corps of Engineers

Arid West – Version 2.0
**WETLAND DETERMINATION DATA FORM - Arid West Region**

**Project/Site:** SAC VALLEY NE Phase 2  
**City/County:** Solano  
**Sampling Date:** 2/18/2017

** Applicant/Owner:** NANTUCKET CEMETARY ADMINISTRATION - VA  
**State:** CA  
**Sampling Point:**  

**Investigator(s):** N. C. BOLE  
**Section, Township, Range:** 32/33 T 7 N, R1E, Dixon/Kendall  
**Landform (hillslope, terrace, etc.):** terrace  
**Local relief (concave, convex, none):** none  
**Slope (%):** 0-1%  

**Subregion (LRR):** LRR-C  
**Lat:** 38.412601°N  
**Long:** -121.884415°W  
**Datum:** NAD

**Soil Map Unit Name:** San Ysidro sandy loam, thick surface 0-29%  
**NWI classification:**  

---  

**Are climatic/hydrologic conditions on the site typical for this time of year?**  
Yes __ No ___ (If no, explain in Remarks.)

**Are Vegetation __ Soil __ or Hydrology ___ significantly disturbed? Are Normal Circumstances present?**  
Yes __ No ___

**Are Vegetation __ Soil __ or Hydrology ___ naturally problematic?** (If needed, explain any answers in Remarks.)

---  

**SUMMARY OF FINDINGS** - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

---  

**VEGETATION** - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: _________)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>NONE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: _________)</th>
<th>= Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>NONE</strong></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: _________)</th>
<th>= Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bromus hendersonii 30 Y FACU</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: _________)</th>
<th>= Total Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th>% Cover of Biotic Crust</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**  
AG field (pre-planting) leveled and rows, ruderal grasses

---  

US Army Corps of Engineers  
Arid West – Version 2.0
**SOIL**

### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>Color (moist)</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>10%YR G3</td>
<td></td>
<td>Sandy</td>
<td></td>
</tr>
</tbody>
</table>

**Type**: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

**Depth**
- **B**
- **C**
- **F**

**Hydric Soil Indicators**:
- **Histosol (A1)**
- **Histosic Epipedon (A2)**
- **Black Histic (A3)**
- **Hydrogen Sulphide (A4)**
- **Stratified Layers (A5) (LRR C)**
- **1 cm Muck (A9) (LRR D)**
- **Depleted Below Dark Surface (A11)**
- **Thick Dark Surface (A12)**
- **Sandy Mucky Mineral (S1)**
- **Sandy Gleyed Matrix (S4)**

**Restrictive Layer (if present)**:
- **Type**: ___________
- **Depth (inches)**: ___________

**Remarks**: ___________

### HYDROLOGY

**Wetland Hydrology Indicators**:

<table>
<thead>
<tr>
<th>Primary Indicators (minimum of one required; check all that apply)</th>
<th>Secondary Indicators (2 or more required)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water (A1)</td>
<td>Water Marks (B1) (Riverine)</td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td>Sediment Deposits (B2) (Riverine)</td>
</tr>
<tr>
<td>Saturation (A5)</td>
<td>Drainage Patterns (B10)</td>
</tr>
<tr>
<td>Water Marks (B1) (Nonriverine)</td>
<td>Dry-Season Water Table (C2)</td>
</tr>
<tr>
<td>Sediment Deposits (B2) (Nonriverine)</td>
<td>Clayfish Burrows (C8)</td>
</tr>
<tr>
<td>Drift Deposits (B3) (Nonriverine)</td>
<td>Saturation Visible on Aerial Imagery (C9)</td>
</tr>
<tr>
<td>Surface Soil Cracks (B6)</td>
<td>Shallow Aquitard (D3)</td>
</tr>
<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td>FAC-Neutral Test (D9)</td>
</tr>
<tr>
<td>Water-Stained Leaves (B9)</td>
<td></td>
</tr>
</tbody>
</table>

**Field Observations**:
- **Surface Water Present?** Yes ___ No ___ Depth (inches): ___________
- **Water Table Present?** Yes ___ No ___ Depth (inches): ___________
- **Saturation Present?** Yes ___ No ___ Depth (inches): ___________

**Wetland Hydrology Present?** Yes ___ No ___

**Remarks**: ___________

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

### Arid West – Version 2.0

US Army Corps of Engineers
WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SAC VALLEY NC Phase 2  City/County: Solano  Sampling Date: 2/18/2017
Applicant/Owner: NAT'L CEMETARY ADMINISTRATION - VA  State: CA  Sampling Point: # 8
Investigator(s): N. BOLE, C. BOLE  Section, Township, Range: 32/33 T7N, R1E, Dixon/Hendale
Landform (hillslope, terrace, etc.): TERRACE
Local relief (concave, convex, none): NONE
Slope (%): 0-1%
Subregion (LRR): 1RR-C
Lat: 38.415718°N  Long: -121.892159°W  Datum: NAD
Soil Map Unit Name: SAY YIELD MEDIUM LOAM 0-2% SLOPES

Hydrophytic Vegetation Present? Yes __ No ___
Hydric Soil Present? Yes ___ No ___
Wetland Hydrology Present? Yes ___ No ___

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ___ No ___</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ___ No ___</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VEGETATION – Use scientific names of plants.

### Tree Stratum (Plot size: ____________)

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Indicator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sapling/Shrub Stratum (Plot size: ____________)

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Indicator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Herb Stratum (Plot size: ____________)

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Indicator</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>20 ___</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>30 ___</td>
<td>NI</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>20 ___</td>
<td>NI</td>
<td></td>
</tr>
</tbody>
</table>

### Woody Vine Stratum (Plot size: ____________)

| % Bare Ground in Herb Stratum | 30 |

### Remarks:

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: __________ (A)

Total Number of Dominant Species Across All Strata: __________ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: __________ (A/B)

Prevalence Index worksheet:

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>OBL species</th>
<th>FACW species</th>
<th>FAC species</th>
<th>FACU species</th>
<th>UPL species</th>
<th>Column Totals:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x1 = __________</td>
<td>x2 = __________</td>
<td>x3 = __________</td>
<td>x4 = __________</td>
<td>x5 = __________</td>
<td>__________ (A)</td>
</tr>
<tr>
<td>Prevalence Index = B/A =</td>
<td>__________ (B)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hydrophytic Vegetation Indicators:

1. Dominance Test is >50%
2. Prevalence Index is ≤3.0^1
3. Morphological Adaptations^1 (Provide supporting data in Remarks or on a separate sheet)
4. Problematic Hydrophytic Vegetation^1 (Explain)

^1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
### SOIL

#### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td></td>
<td>10YR G4/3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sandy Loam</td>
<td></td>
</tr>
</tbody>
</table>

1. Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.
2. Location: PL=Pore Lining, M=Matrix.

#### Hydric Soil Indicators:
(Applicable to all LRRs, unless otherwise noted.)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td>Sandy Redox (S5)</td>
</tr>
<tr>
<td>Histric Epipedon (A2)</td>
<td>Stripped Matrix (S6)</td>
</tr>
<tr>
<td>Black Histric (A3)</td>
<td>Loamy Mucky Mineral (F1)</td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td>Loamy Gleyed Matrix (F2)</td>
</tr>
<tr>
<td>Stratified Layers (A5) (LRR C)</td>
<td>Depleted Matrix (F3)</td>
</tr>
<tr>
<td>1 cm Muck (A9) (LRR D)</td>
<td>Redox Dark Surface (F6)</td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td>Depleted Dark Surface (F7)</td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td>Redox Depressions (F8)</td>
</tr>
<tr>
<td>Sandy Mucky Mineral (S1)</td>
<td>Vernal Pools (F9)</td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
</tr>
</tbody>
</table>

#### Restrictive Layer (if present):
Type: __________
Depth (inches): __________

<table>
<thead>
<tr>
<th>Hydric Soil Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

### HYDROLOGY

#### Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water (A1)</td>
<td>Salt Crust (B11)</td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td>Biotic Crust (B12)</td>
</tr>
<tr>
<td>Saturation (A3)</td>
<td>Aquatic Invertebrates (B13)</td>
</tr>
<tr>
<td>Water Marks (B1) (Nonriverine)</td>
<td>Hydrogen Sulfide Odor (C1)</td>
</tr>
<tr>
<td>Sediment Deposits (B2) (Nonriverine)</td>
<td>Oxidized Rhizospheres along Living Roots (C3)</td>
</tr>
<tr>
<td>Drift Deposits (B3) (Nonriverine)</td>
<td>Presence of Reduced Iron (C4)</td>
</tr>
<tr>
<td>Surface Soil Cracks (B6)</td>
<td>Recent Iron Reduction in Tilled Soils (C6)</td>
</tr>
<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td>Thin Muck Surface (C7)</td>
</tr>
<tr>
<td>Water-Stained Leaves (B9)</td>
<td>Other (Explain in Remarks)</td>
</tr>
</tbody>
</table>

Secondary Indicators (2 or more required)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Marks (B1) (Riverine)</td>
<td>Sediment Deposits (B2) (Riverine)</td>
</tr>
<tr>
<td>Drift Deposits (B3) (Riverine)</td>
<td>Drainage Patterns (B10)</td>
</tr>
<tr>
<td>Dry-Season Water Table (C2)</td>
<td>Crayfish Burrows (C8)</td>
</tr>
<tr>
<td>Saturation Visible on Aerial Imagery (C9)</td>
<td>Shallow Aquitard (D3)</td>
</tr>
<tr>
<td>FAC-Neutral Test (D5)</td>
<td></td>
</tr>
</tbody>
</table>

#### Field Observations:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
<th>Depth (inches):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Water Table Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Saturation Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wetland Hydrology Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
APPENDIX D:

PHOTO LOG
Overview of Phase II Project, facing north

Overview of Existing Sacramento Valley National Cemetery, facing west

Overview of Existing Sacramento Valley National Cemetery, facing west

U.S. Department of Interior High Voltage Transmission Line, viewing north

Overview of Phase II Project, facing south

Overview of Phase II Project, facing south

Overview of Sweeney Creek, facing east
APPENDIX E:
PUBLIC INVOLVEMENT
Reserved for Notices and Comments
to be appended as part of Final EA