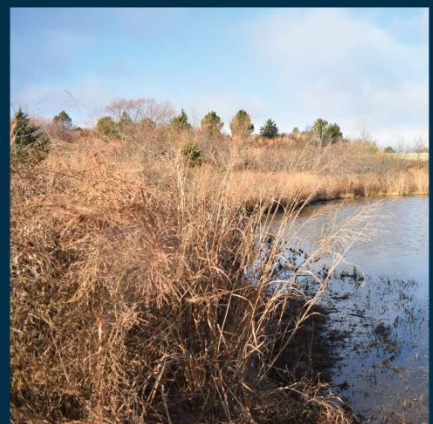
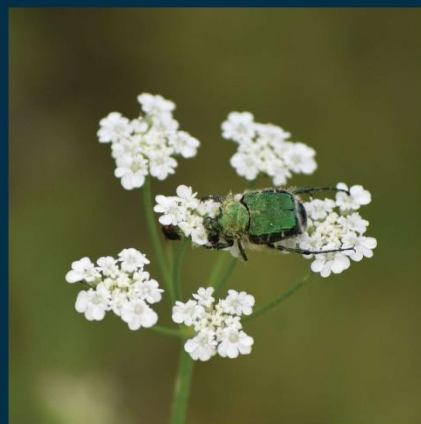


DRAFT

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED EXPANSION AND IMPROVEMENTS AT THE DALLAS-FORT WORTH NATIONAL CEMETERY U.S. DEPARTMENT OF VETERANS AFFAIRS

JUNE 2020



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PROPOSED EXPANSION AND IMPROVEMENTS AT THE
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U.S. DEPARTMENT OF VETERANS AFFAIRS**



June 2020

**DRAFT FINDING OF NO SIGNIFICANT IMPACT
FOR THE
PROPOSED EXPANSION AND IMPROVEMENTS AT THE
DALLAS-FORT WORTH NATIONAL CEMETERY
U.S. DEPARTMENT OF VETERANS AFFAIRS**

Pursuant to the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) implementing the National Environmental Policy Act of 1969 (NEPA), and the Department of Veterans Affairs' (VA's) NEPA implementation regulations, as promulgated at 38 CFR Part 26, the VA gives notice that an Environmental Assessment (EA) has been prepared and an Environmental Impact Statement (EIS) is not required for proposed minor burial facilities expansion and lake dredging activities at the Dallas-Fort Worth (DFW) National Cemetery, Dallas County, Texas.

INTRODUCTION

The DFW National Cemetery requires construction of expanded burial service areas within the existing cemetery boundary to accommodate demand for veteran burial services. The VA completed an EIS and Record of Decision in April 1992 that identified a preferred site for the development of a new National Cemetery in Dallas County, Texas. The DFW National Cemetery was dedicated and opened for burials on May 12, 2000. The EIS acknowledged that the cemetery would be developed in various phases that were anticipated to be implemented in 10-year increments, depending upon the frequency of interments. The first phase was completed with the development of approximately 110 acres providing capacity for approximately 10 years' worth of traditional gravesites and columbaria niches. The cemetery was expanded in 2010 to accommodate additional gravesites. A second minor expansion was initiated in 2015 that provided additional pre-placed burial crypts and columbaria niches. Due to the high number of veterans and their eligible spouses living in the DFW Metroplex, and with nearly 3,900 services per year, the DFW National Cemetery will reach its current columbaria niche capacity within 3 years. The increase in services has also created a need for an additional committal service shelter and an additional cortege lane at the Public Information Facility. Consequently, the VA is currently planning another minor expansion phase.

Further, as part of the development and initial construction of DFW National Cemetery, an approximately 5-acre man-made lake was included in the 1996 Master Plan. This lake, named Veterans Lake, is located in the north-central portion of the site and serves as a source of irrigation water and an attractive assembly area for visitors to the cemetery. The lake was built over a section of Nancy's Creek, which is an intermittent tributary that drains surrounding uplands and flows northwards into Mountain Creek Lake. Construction of a lake over a natural intermittent tributary qualified the project for Clean Water Act (CWA) Section 404 regulatory permitting and mitigation. The wetland mitigation plan was approved in March 1998 and implementation of the plan created a permanent wetland mitigation area (approximately 3.3 acres) at the southern end of the lake, which includes a portion of the lake, a reach of Nancy's Creek, and surrounding riparian and upland areas. Multiple flood events, contractor disturbances, and design failures have resulted in modifications to the original wetland mitigation plan.

In the last 10 to 15 years, the transport of sediment from low frequency high water events has resulted in heavy sediment deposition in Veterans Lake as well as blockage along a portion of the lower Nancy's Creek channel that prevents flow from upper reaches. This portion of Nancy's Creek, located in the wetland mitigation area south of Veterans Lake, no longer exhibits

the hydrology designed for the tributary and lake system in the original mitigation plan. Additionally, Veterans Lake is experiencing significant sediment loads that are impacting the operation and maintenance costs of the water fountains and reducing the storage capacity of the lake. When originally constructed, the lake reached a maximum depth of 8.5 feet. The lake currently ranges in depth from 2 feet 2 inches to 6 feet 8 inches, and it is at 50 percent storage capacity due to the build-up of sediment.

PURPOSE AND NEED

The purpose of the Proposed Action is to comply with the VA mission to provide interment services to U.S. veterans and their families while complying with all environmental laws and regulations associated with the development of the cemetery. The need for burial expansion is to ensure a sufficient capacity of various types of interment sites, crypts, and columbaria beyond 2020. Without implementation of the Proposed Action, the DFW National Cemetery is expected to reach capacity in developed areas within 3 years, which would lead to scheduling conflicts due to an insufficient number of committal service shelters.

Dredging and maintenance of Veterans Lake and a portion of the wetland mitigation area are necessary in order to maintain compliance with the original CWA Section 404 Nationwide Permit that approved construction of the lake. The Proposed Action will restore hydrological characteristics to the lake and a reach of Nancy's Creek that are required in perpetuity as mitigation measures for the original loss of a section of Nancy's Creek when Veterans Lake was built.

SUMMARY OF PROPOSED ACTION

Proposed Action: The Proposed Action (Preferred Alternative) is to implement the proposed improvements, repairs, and expansion at the DFW National Cemetery. Specifically, the expansion would include four construction projects: 1) a 9,000-niche columbarium along the southwest portion of Lone Star Circle; 2) a fourth committal service shelter along the southern portion of Lone Star Circle and adjacent to the proposed location of the columbarium; 3) a fourth cortege lane south of the Public Information Center; and 4) a burial expansion site south of Lone Star Circle that would provide an additional 8,000 pre-placed crypts, 6,000 in-ground cremain burial plots, and associated roads and landscaping. The new columbarium, committal service shelter, and cortege lane would be built along existing roadways or paved areas. The new burial expansion site would include the creation of new roads that connect to Lone Star Circle at a single intersection. The addition of 8,000 pre-placed crypts and 6,000 in-ground cremain burial plots would be completed in anticipation of the projected depletion of current gravesites by 2025. The layout style and aesthetics of this expansion site would be kept consistent with the existing burial sites at the National Cemetery. The projected impact area for the proposed burial expansion site, including the construction access road and staging area, would be approximately 27 acres. Construction is currently planned to begin in early 2020 and would require approximately 610 days to complete. The expansion activities are expected to provide five additional years of burial capacity.

The dredging of Veterans Lake would include removal of sediments and grading of the lake bottom to original design specifications. Dredging of the lake would re-establish a consistent lake bottom depth of 8 feet 6 inches. Approximately 20,000 cubic yards of material would be removed from the lake during dredging activities. A barge-mounted hydraulic dredge would be used to remove the accumulated sediments. Sediments would either be pumped to disposal sites or would be pumped to dump trucks and then hauled to designated spoils areas. Clean-

out of the Nancy's Creek area would be comprised of dredging of materials from the lower creek channel and subsequent maintenance to erosion control features located along the channel. Up to 5 feet of sediment, as well as vegetation, would be removed from the channel and deposited in the same spoils areas where lake dredging material would be placed. A Section 404 Nationwide Permit 27 for maintenance and restoration of aquatic areas would be acquired prior to proposed activities within Veterans Lake and the Nancy's Creek wetland mitigation area.

No Action Alternative: Under the No Action Alternative, none of the improvements or new construction activities would be implemented. The DFW National Cemetery currently has nearly 416 acres in undeveloped land and 167.5 acres developed. The current gravesite usage (for casketed, in-ground cremains, and columbaria niches) is approximately 3,900 annually. The DFW National Cemetery has 8,389 remaining pre-placed crypts and 6,091 remaining columbaria niches. Once these sites are utilized, the Dallas-Fort Worth veteran population would no longer have reasonable access to Federal burial options. Additionally, recent increased demands have resulted in scheduling conflicts at the current committal shelters.

Without sediment removal and implementation of proposed maintenance to sediment controls, Veterans Lake would eventually silt in and become vegetated. The wetland mitigation area to the south of Veterans Lake would further lose its hydrologic characteristics, which were designed and required by the 1998 wetland mitigation plan and later revisions to this plan. Loss of deep-water habitat (i.e., Veterans Lake) and unapproved alterations to the hydrology of the wetland mitigation area are violations of the 1998 wetland mitigation plan and later revisions that require the wetland mitigation area to be maintained as designed in perpetuity.

ENVIRONMENTAL CONSEQUENCES

By implementing the Proposed Action, construction activities would have minor to negligible adverse impacts on the natural and human environments. Cultural and biological resources surveys were conducted in 2019 and 2020 and found no sensitive resources within the proposed project area. Natural areas would persist around the periphery of the expansion site, and proposed project activities have been planned to avoid high-quality natural areas such as remnant little bluestem grassland. No Federal or state threatened or endangered species are known to occur in the project area. Minor adverse impacts to vegetation and wildlife would occur from construction of the expanded burial sites. No burial expansion construction is planned to occur over wetlands or 100-year floodplains. Although Dallas County is in non-attainment for ground-level ozone, no permanent adverse impacts to air quality are expected, and estimated temporary impacts from construction activities are below *de minimis* threshold levels. There are no low-income or minority populations living in proximity to the cemetery, and socioeconomic impacts to the surrounding community, either beneficial or adverse, are expected to be negligible.

All applicable state and Federal permits would be obtained prior to project implementation. These include the following: 1) Department of the Army Section 404 Nationwide Permit 27 for modifications to waters of the U.S., including wetlands; 2) Texas Commission on Environmental Quality (TCEQ) Section 401 water quality certification review; and 3) Texas Pollution Discharge Elimination System (TPDES) Construction General Permit (CGP) for stormwater pollutants. After coordination with Texas Parks and Wildlife Department (TPWD), it has been determined that an Aquatic Resource Relocation Plan (ARRP) or related permit would not be needed for proposed work in Veterans Lake and the Nancy's Creek wetland mitigation area. Coordination with TPWD Inland Fisheries is still occurring regarding a Marl, Sand, Gravel, Shell, or Mudshell Permit for proposed activities.

BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) would be utilized during all project activities. The proposed BMPs will be coordinated through the appropriate agencies and responsible parties, as required (see Section 6.0 of the attached EA for further information).

General

- Prior to the start of construction activities and for all new site workers, training will be provided for all project personnel on the proper implementation of construction BMPs associated with the project. This training will provide construction personnel with a clear understanding of the sensitive natural and cultural resources with potential to be found on-site.
- The project construction area perimeters will be clearly demarcated, and no disturbance outside the construction area perimeter will be authorized without prior coordination and approval from USACE, Fort Worth District and the VA.
- Spoils deposited in spoils areas will be spread and compacted to a minimum of 85 percent compaction of the original spoils deposition height. Spoils will only be used within upland areas within the cemetery boundary and will never be deposited in or near potential jurisdictional wetlands, Waters of the U.S., or other potential water resources or drainage areas. If spoils are not used within 14 days after deposition, areas containing spoils depositions will be re-vegetated using a native seed mixture. This seed mixture will not contain any non-native species such as Bermuda grass (*Cynodon dactylon*). At a minimum, a seed mix of three native grass species such as little bluestem, switchgrass, and Indian grass will be used for re-vegetation.

Cultural Resources

- If archaeological features or human remains are inadvertently discovered, all work would be halted in that area, the State Historic Preservation Officer would be contacted, and appropriate measures would be implemented to mitigate any adverse impacts.

Soils

- Appropriate TPDES permitting would be obtained by the contractor, prior to construction activities, and BMPs, including but not limited to silt fences, waddles, wetting compounds, and re-vegetation of disturbed areas with native grasses, would be carried out to reduce fugitive dust and erosion from disturbed sites and soil stockpile areas.
- Care will be taken to avoid impacting the project area with hazardous substances (e.g., antifreeze, fuels, oils, lubricants) used during construction activities. Any spill of a reportable quantity will be contained immediately within an earthen dike, and the application of an absorbent (e.g., granular, pillow, sock) will be used to absorb and contain the spill. Any reportable spill of a hazardous or regulated substance will be reported immediately to on-site environmental personnel who will notify appropriate Federal and state agencies.

Water Resources

- A SWPPP will be prepared and implemented prior to commencement of construction activities. The SWPPP will consider areas with highly erodible soils when planning construction activities and incorporate measures such as silt fence, waddles, aggregate materials, and wetting compounds in the erosion-control BMPs. Erosion control will consist of hydromulching or no-till drilling if feasible. If erosion control blankets or mats are used, the material will not contain plastic netting that would pose an entanglement

hazard for wildlife. The SWPPP will be prepared in accordance with requirements of the TPDES CGP.

- All TPDES CGP BMPs will be adhered to during dredging activities in Veterans Lake.
- Silt fencing or similar erosion prevention materials should be placed along the southern end of the Lake Dredge/Construction Spoils Area to prevent erosion and washout of deposited materials into the O'Guinn Creek 100-year floodplain. Similar erosion control or washout prevention should be placed along the eastern end of the Columbaria Spoils Area, which is adjacent to Nancy's Creek. Erosion control should also be placed between the eastern edge of the 27-acre burial expansion area and the section of Nancy's Creek which is in proximity to the burial expansion area.
- BMPs required for TCEQ Section 401 water quality certification (if necessary) when applying for a Section 404 Nationwide Permit 27 include (TCEQ 2017):
 - Erosion control (at least one of the following): temporary vegetation, mulch, interceptor swale, erosion control compost, compost/mulch filter socks, blankets/matting, sod, diversion dike
 - Sedimentation control (at least one of the following): sand bag berm, silt fence, triangular filter dike, stone outlet sediment traps, erosion control compost, compost/mulch filter socks, rock berm, hay bale dike, brush berms, sediment basins

Biological Resources

- Environmental awareness training will be given to all construction personnel prior to the initiation of construction activities. This training will include notifying construction personnel of Federally listed, state listed, and SGCN species with the potential to occur in the project area.
- To avoid adverse effects on migratory birds, preference would be given to clearing of trees and shrubs outside of the nesting season (March 15 to September 15). If vegetation clearing has to occur during the nesting season, the areas to be cleared would be surveyed for nesting birds prior to clearance activities. If active nests are encountered, the nests would be protected by maintaining a 150-foot buffer of vegetation around the nests until eggs have hatched and the young have fledged. The biological monitor would also conduct additional pre-construction surveys for Federally listed, state listed, and SGCN species. State-listed species discovered on-site would be relocated by a biologist permitted or approved by the TPWD Wildlife Permits Office.
- In the unlikely event a bald eagle or whooping crane are observed in the project site during the burial expansion construction activities, all work would cease until the individual(s) leave the area on their own volition. The VA would also contact the USFWS Ecological Services Office to inform them of the sighting.
- If trenches are dug during construction activities and left open for more than two hours, trenches will be inspected for wildlife prior to backfilling. If trenches are left open overnight, then escape ramps (e.g., wooden planks) will be placed at a terminus of the trench to aid wildlife in escape.
- Prior to commencement of construction activities and dredging of Veterans Lake and the Nancy's Creek wetland mitigation area, an Aquatic Invasive Species (AIS) Transfer Prevention Plan will be developed. This plan will describe BMPs to be adhered to by construction personnel to prevent the spread of aquatic invasive plants and animals on construction equipment and materials. The AIS Transfer Prevention Plan will use guidance from two primary source documents: 1) The TPWD *Guidelines for Aquatic Resource Relocation Plans for Fish and Shellfish, Including Freshwater Mussels* (https://tpwd.texas.gov/publications/pwdpubs/media/pwd_lf_t3200_1958_arrp_guidelines)

_packet.pdf); and 2) *TPWD Clean/Drain/Dry Procedures and Zebra Mussel Decontamination Procedures for Contractors Working in Inland Public Waters* (https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/habitat_assessment/media/WHAB_ZebraMussel_CleanDrainDryDecontaminationProcedures_Final_02052015.pdf). This plan will be particularly important during proposed dredging activities and the following BMPs (or similar) should be included in the plan:

- If a barge-mounted dredge/excavator or any other equipment makes contact with Veterans Lake or Nancy's Creek, this equipment will be drained of all water (including motor, bilge, and other receptacles). Cleaning, draining, and drying of equipment should occur both in preparation for and after completion of proposed dredging activities at DFW National Cemetery. Construction personnel should receive training on the proper implementation of the clean/drain/dry procedure for limiting spread of invasive aquatic species.
- Any plant material discovered on equipment should be removed and disposed of in trash receptacles prior to, during, and after completion of proposed dredging activities. Do not throw plant material into Veterans Lake, Nancy's Creek, or the vicinity of these waterbodies.

Air Quality

- If possible, construction equipment should be staged at the construction site for the length of construction activities (or during active construction) to reduce emissions from the transport of machinery.
- Unpaved roads (i.e., the designated construction access road) and staging areas should be watered during construction activities to minimize fugitive dust emissions from construction traffic.

FINDING

On the basis of the findings of the EA, which is incorporated by reference, and after careful review of the potential environmental impacts of implementing the proposal, we find there would be no significant impact on the quality of the human or natural environments, either individually or cumulatively; therefore, there is no requirement to develop an EIS. Further, we commit to implement BMPs and environmental design measures identified in the EA and supporting documents.

Michael T. Roth
Director
Design and Construction Service
U.S. Department of Veterans Affairs
National Cemetery Administration

Date

EXECUTIVE SUMMARY

Introduction

Dallas-Fort Worth (DFW) National Cemetery was established in 2000 under the Veterans' Benefits Improvement and Health Care Authorization Act of 1986 (Public Law [PL] 99-576) and is managed by the United States (U.S.) Department of Veterans Affairs (VA). The cemetery is situated on a 583.5-acre parcel of land that overlooks Mountain Creek Lake. The cemetery was initially planned to be developed in phases; these phases are anticipated to be in 10-year increments, depending upon the burial rate and subsequent quantities of interments. Since the opening of the cemetery in 2000, two expansions have occurred (2010 and 2014) to provide additional burial capacity. Because of the high number of veterans and their eligible spouses and dependents living in the DFW Metroplex, as well as the nearly 3,900 services performed per year, the cemetery will reach its current columbaria niche capacity within 3 years and crypt capacity in 5 years. Consequently, the VA is currently planning a gravesite expansion phase for DFW National Cemetery.

The VA proposes to expand its capacity of crypts, columbaria, and supporting burial services infrastructure to meet the growing demand at DFW National Cemetery and ensure that no break in service to the veteran community occurs. New sites would be developed for the crypts and columbaria, and a cortege lane and committal service shelter would be added to prevent conflicts or delays during burial service scheduling.

Additionally, Veterans Lake, a man-made lake that serves as an attractive assembly area for visitors, has excessively filled with sediment from upstream portions of Nancy's Creek. Furthermore, a reach of Nancy's Creek immediately upstream from Veterans Lake has been cut off from the rest of the creek channel as a result of sediment deposition. The creek blockage is located in an area that has been designated as a wetland mitigation area that is to be maintained as a natural wetland area in perpetuity. Dredging of Veterans Lake and the wetland mitigation area would be performed in order to prevent Veterans Lake from completely filling with sediment and to maintain compliance with legal requirements for the management of a wetland mitigation area.

The purpose of the Proposed Action is accomplishment of the VA mission to provide interment services to U.S. veterans and their families while complying with environmental regulations relevant to the already established wetland mitigation area located on the cemetery grounds. The need is to ensure a sufficient capacity of various types of interment sites beyond 2025, as well as prevention of the loss of the man-made lake and associated wetland mitigation area due to sedimentation.

Proposed Action

The Proposed Action (Preferred Alternative) is to implement the proposed improvements, repairs, and expansion at the DFW National Cemetery. Specifically, the expansion items would include four construction projects:

- 1) a 9,000-niche columbarium along the southwest portion of Lone Star Circle;
- 2) a fourth committal service shelter along the southern portion of Lone Star Circle and adjacent to the proposed location of the columbarium;
- 3) a fourth cortege lane south of the Public Information Center; and

- 4) a burial expansion site south of Lone Star Circle that would provide an additional 8,000 pre-placed crypts, 6,000 in-ground cremain burial plots, and associated roads and landscaping.

Construction is currently planned to be initiated in early 2020 and is estimated to require 610 days to complete (around March 2022). These activities are planned to provide 5 years of burial expansion. The improvements will all be within lands currently managed by the VA; no additional land acquisition is required.

The Proposed Action also includes maintenance activities in Veterans Lake and the Nancy's Creek wetland mitigation area. Dredging of Veterans Lake would consist of sediment removal to re-establish the original designed depth of the lake (8 feet 6 inches). Dredging within Nancy's Creek would consist of the removal of up to 6 feet of sediment from a portion of the channel which has been maintained previously using gabion stabilization features. All sediment would be removed from a section of gabion baskets, and the baskets would be inspected for proper functioning. A Section 404 Nationwide Permit 27 for maintenance and restoration of aquatic areas would be acquired prior to proposed activities within Veterans Lake and the Nancy's Creek wetland mitigation area. All activities within Veterans Lake and the Nancy's Creek wetland mitigation area would occur to improve and maintain natural aquatic areas in perpetuity.

No Action Alternative: Under the No Action Alternative, the burial expansion, lake dredging, and wetland mitigation area maintenance activities would not be implemented. DFW National Cemetery currently has approximately 416 acres in undeveloped land that would remain undeveloped. At the end of 2018, DFW National Cemetery had 8,389 remaining pre-placed crypts, 989 traditional gravesites, and 6,091 remaining columbaria niches. Once current interment capacities are utilized, the Dallas-Fort Worth veteran population would no longer have reasonable access to burial options within a VA cemetery.

Without implementation of dredging, Veterans Lake would continue to fill with sediment and eventually lose its water-holding capacity. A central feature of the cemetery would be lost. Lack of maintenance activities within the Nancy's Creek wetland mitigation area would violate legal requirements for the upkeep of a wetland mitigation area under granting of the original Section 404 permit. A new wetland mitigation area would have to be established in an alternative location to avoid fines or legal ramifications.

Environmental Consequences

Implementation of the Proposed Action would have minor to negligible impacts on the natural and human environments. Cultural and biological resources surveys were conducted in 2019 and 2020 and found no sensitive resources within the proposed project area. All applicable state and Federal permits would be obtained prior to site preparation activities. All clearing of vegetation would be done outside of the nesting season or nesting bird surveys would be carried out prior to site preparation. Active nests would be protected until the young have fledged. In accordance with requirements of the Texas Pollution Discharge Elimination System Construction General Permit, appropriate Best Management Practices (BMPs) would be implemented to prevent water quality impairments (i.e., pollution) from sediment disturbance during dredging activities. Air pollution would remain below *de minimis* thresholds. BMPs would be utilized during construction to prevent fugitive dust and erosion. No substantial socioeconomic or environmental justice impacts would occur from the Proposed Action.

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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

The Dallas-Fort Worth (DFW) National Cemetery requires construction of expanded burial service areas to accommodate demand for veteran burial services. The DFW National Cemetery was established in 2000 under the Veterans' Benefits Improvement and Health Care Authorization Act of 1986 (Public Law [PL] 99-576) and is managed by the Department of Veterans Affairs (VA). The United States (U.S.) Army Corps of Engineers (USACE), Fort Worth District, acting on behalf of the VA, is preparing this Environmental Assessment (EA) in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and VA's NEPA implementation regulations, as promulgated at 38 Code of Federal Regulations (CFR) Part 26.

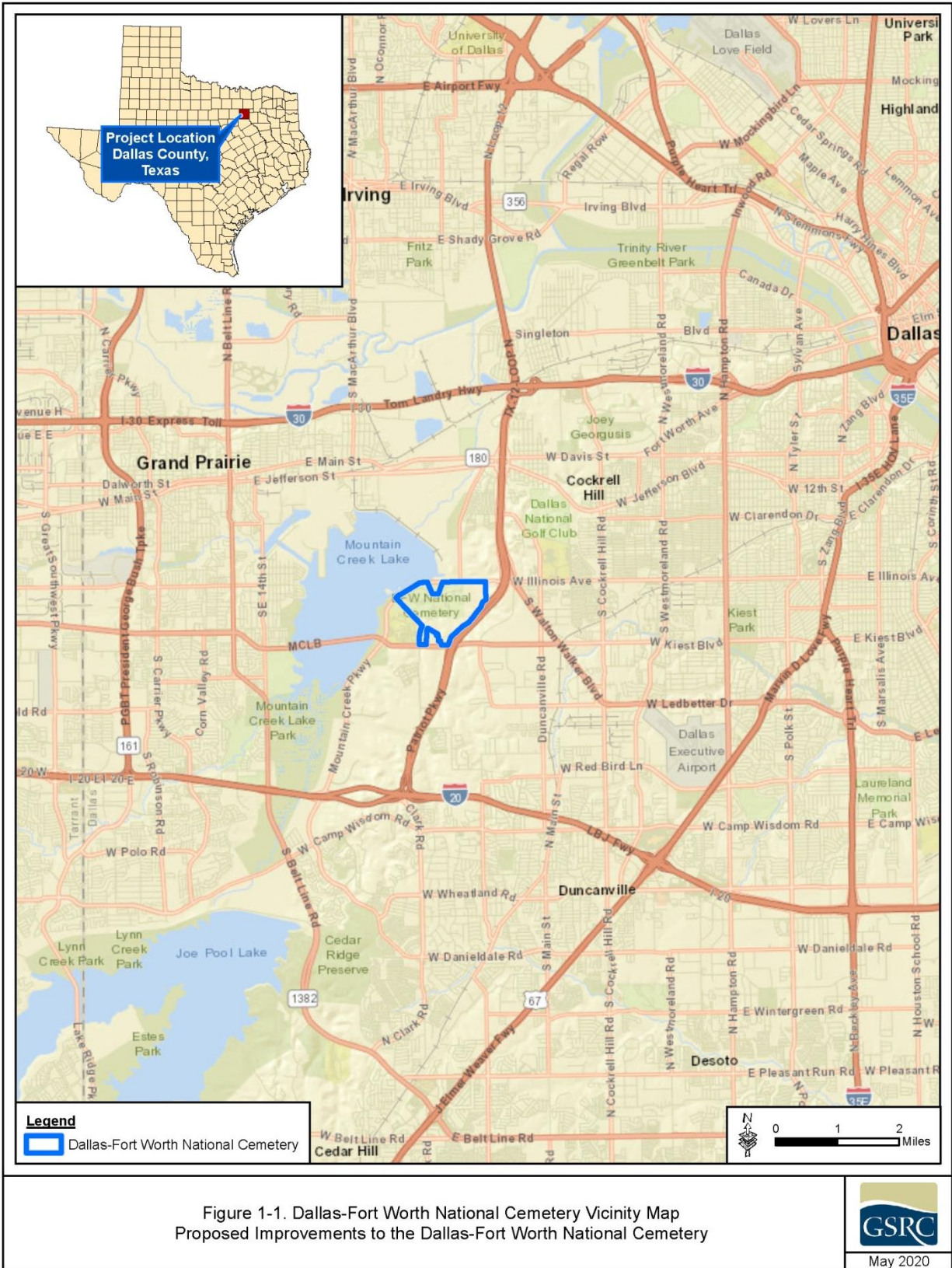
1.2 Background

The VA (formerly known as the Veterans Administration) has the responsibility to provide programs for veterans' disability compensation, insurance for service persons and veterans, and vocational rehabilitation for disabled veterans. In 1973, the operation and maintenance of the National Cemetery Administration (NCA) (formerly known as the National Cemetery System [NCS], except for Arlington National Cemetery and Soldier's Home National Cemetery) was transferred to the VA from the Department of the Army. The NCA maintains approximately 3.3 million gravesites (i.e., interment sites) at 131 national cemeteries, one national Veterans' burial ground, and 33 soldiers' lots and monument sites in 40 states and Puerto Rico. The VA is charged with the marking of graves of all persons in national and state cemeteries (and the graves of veterans in private cemeteries, upon request) as well as administering the State Cemetery Grants Program.

The VA completed an Environmental Impact Statement (EIS) and Record of Decision in April 1992 that identified the Mountain Creek Site in southwest Dallas, Texas, as the preferred site for the development of a new National Cemetery (VA 1992) (Figure 1-1). Prior to the development of the EIS, the VA identified the DFW region as an area with urgent need for a national cemetery due to the large veteran population and lack of a nearby National Cemetery (none within 150 miles) (VA 1992). The nation as a whole was in need of expanded veteran burial accommodations in the late 1990's and early 2000's because the World War II veteran population was entering its period of peak need (NCS 1997). The NCS predicted that veteran deaths would rise 20 percent between 1995 and 2010, with a peak estimated number of 620,000 deaths occurring in 2008 (NCS 1997). The annual deaths were then predicted to steadily decrease each year after approximately 2010 (NCS 1997).

The DFW National Cemetery was dedicated and opened for burials on May 12, 2000. The cemetery is situated on a 583.5-acre parcel of land that overlooks Mountain Creek Lake (Figure 1-2). The gently rolling hills provide a pastoral setting for visitors as they proceed along the central boulevard to Veterans Lake adjacent to the assembly area and committal service shelters.¹ The EIS acknowledged that the cemetery would be developed in various phases that were anticipated to be implemented in 10-year increments, depending upon the frequency of interments. The first phase was completed with the development of approximately 110 acres providing capacity for approximately 10 years' worth of traditional gravesites and columbaria

¹ Committal service shelter: An open structure away from the actual gravesite where committal or interment services occur.





niches.² The cemetery was expanded in 2010 to accommodate an additional 28,000 gravesites (Dallas Morning News 2009). A second minor expansion was initiated in 2015 that provided an additional 7,680 pre-placed burial crypts and 7,080 columbaria niches. As of the end of Fiscal Year (FY) 2018, there have been a total of 63,260 interments, leaving 8,389 crypts, 989 traditional gravesites, and 6,091 columbaria niches as the remaining interment capacity.

Due to the high number of veterans and their eligible spouses living in the Dallas-Fort Worth Metroplex, and with nearly 3,900 services per year, the DFW National Cemetery will reach its current columbaria niche capacity within 3 years. The increase in services has also created a need for an additional committal service shelter and an additional cortege lane³ at the Public Information Facility. Consequently, the VA is currently planning another minor expansion phase.

As part of the development of the DFW National Cemetery at the Mountain Creek Site, an approximately 5-acre man-made lake was designed and included in the 1996 Master Plan. This lake, named Veterans Lake, is located in the north-central portion of the site and serves as a source of irrigation water and an attractive assembly area for visitors to the cemetery. Veterans Lake was constructed concurrently with other cemetery infrastructure and completed in 1999 prior to the opening of the cemetery (GLHN Architects and Engineers, Inc. [GLHN] 2003a). The lake was built over a section of Nancy's Creek, which is an intermittent tributary that drains surrounding uplands and flows northwards into Mountain Creek Lake. Construction of a lake over a natural intermittent tributary qualified the project for Clean Water Act (CWA) Section 404 regulatory permitting and mitigation (Carter and Burgess 1998). The mitigation plan was approved in March 1998 and consisted of three on-site compensatory mitigation actions: 1) creation of a 550-linear-foot emergent zone along the southern half of the lake; 2) creation of an upper shelf riparian zone along 1,000 feet of the creek channel upstream from the lake; and 3) creation of the lake itself, which provides deep-water habitat for aquatic species (Carter and Burgess 1998). Part of the wetland mitigation plan included the installation of erosion control features (i.e., gabions⁴) at the southern end of the lake. Gabion baskets and gabion mattresses were installed along Veterans Lake and Nancy's Creek to reduce erosion, maintain designed creek channel hydrology, and divert stormwater into the lake.

Multiple flood events (March 2002, July 2004), contractor disturbances, and design failures resulted in three modifications to the original wetland mitigation plan, which were released in 2003, 2004, and 2006 (GLHN 2003b, GLHN 2004, GLHN 2006). These modifications were designed to offset the damages that had occurred at the wetland mitigation area, including severe erosion of the creek channel, sediment deposition in the lake, and loss of planted riparian trees and shrubs. Modifications to the mitigation plan were approved, and on October 20, 2009, the final annual monitoring report was approved for the project on the condition that all other terms of the mitigation plan are maintained in perpetuity (USACE, Fort Worth District 2009). In the last 10 to 15 years, the transport of sediment from low frequency high water events has resulted in heavy sediment deposition in Veterans Lake as well as blockage along a portion of the lower Nancy's Creek channel that prevents flow from upper reaches. This portion

² Columbarium: A room or structure containing small compartments (i.e., niches) that hold cremation urns and family mementos.

³ Cortege lane: A lane within a waiting area set aside for funeral attendants to line up vehicles and wait for the beginning of the procession.

⁴ Gabions: Rectangular wire mesh containers (usually steel) filled with stone and used as erosion control features for various types of construction.

of Nancy's Creek, located in the wetland mitigation area south of Veterans Lake, no longer exhibits the hydrology designed for the tributary and lake system in the original mitigation plan.

Veterans Lake is experiencing significant sediment loads that are impacting the operation and maintenance costs of the water fountains and reducing the storage capacity of the lake. When originally constructed, the lake reached a maximum depth of 8.5 feet. The lake currently ranges in depth from 2 feet 2 inches to 6 feet 8 inches, and it is at 50 percent storage capacity due to the build-up of sediment. The current inundation of sediment into the lake limits its capacity to provide irrigation water for cemetery operations as well as aquatic habitat for local wildlife.

1.3 Prior Actions and Analyses at DFW National Cemetery

Prior environmental analyses at the DFW National Cemetery began with the 1992 EIS, which assessed three potential sites for the cemetery, including the selected preferred Mountain Creek site (VA 1992). The EIS concluded that the development of DFW National Cemetery at the Mountain Creek site would have no impacts on threatened and endangered species, cultural resources, or transportation, and it would have low impacts on ground water, surface water, air quality, noise, wildlife, and socioeconomic factors (VA 1992). The first expansion, which was opened in 2010, was completed under the original environmental analyses. An EA released in 2015 for the second expansion phase determined there would be no adverse effects to cultural resources and negligible adverse effects to natural resources and socioeconomics (VA 2015). During the public review period, six agencies sent response letters, none of which had objections to the proposed action. Throughout the extent of initial construction and secondary improvements and expansions at the DFW National Cemetery, the public stakeholder community has been supportive of all actions intended to build and maintain DFW National Cemetery as a service to the veteran community.

1.4 Public Involvement

The VA invites public participation in the NEPA process. A consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision-making process.

Public participation opportunities with respect to the EA and decision-making on the Proposed Action are guided by 38 CFR Part 26. Coordination letters will be sent to various stakeholders including, but not limited to, the following:

- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- Texas Department of Transportation
- Texas Commission on Environmental Quality
- Texas Parks and Wildlife Department
- Texas Historical Commission
- Oncor Electric Utility Company
- Dallas Baptist University
- Potter's House
- Native American Tribes

The draft EA will be released to the public for review and comments upon approval by the VA and the USACE, Fort Worth District. A Notice of Availability (NOA) will be published in the *Fort Worth Star Telegram* and the *Dallas Morning News*. Copies of the EA will also be submitted directly to affected federal, state, local regulatory or resources agencies, and other stakeholders. The public comment period is anticipated to be open for a minimum of 14 calendar days. At the end of the 14-day public review period, the VA will consider any comments that are submitted by individuals, agencies, or organizations regarding the Proposed Action and the EA. If the VA determines that the Proposed Action would not result in any significant impact on the human and natural environments, the VA may proceed with the Proposed Action. If it is determined that implementation of the Proposed Action would result in significant impacts, the VA would either commit to mitigation actions sufficient to reduce impacts to less than significant levels, publish in the *Federal Register* a notice of intent to prepare an EIS, or not implement the Proposed Action.

Throughout this process, the public may obtain information on the status and progress of the Proposed Action and the EA through the VA's website (<http://www.va.gov/opa/pressrel/>) or by contacting Ms. Erica Boulanger at USACE, Fort Worth District, 819 Taylor Street, Room 3B10, Fort Worth, Texas, 76102 or via e-mail at Erica.b.boulanger@usace.army.mil.

2.0 PROPOSED ACTION AND ALTERNATIVES

The VA proposes to expand its capacity for burial sites and columbaria to meet the demand for interment sites at the DFW National Cemetery and to ensure no break in service to the regional veteran community. A new site would be developed for a 9,000-niche columbarium. Additionally, a new burial expansion site to include new roadways, 8,000 pre-placed crypts, and 6,000 in-ground cremain burial plots⁵ would be constructed. Other improvements would include the proposed construction and maintenance of a fourth committal service shelter and a fourth cortege lane. Furthermore, dredging of Veterans Lake and the adjacent wetland mitigation area would occur to remove sediments and restore intended water flow patterns.

2.1 Purpose and Need

The purpose of the Proposed Action is to comply with the VA mission to provide interment services to U.S. veterans and their families while complying with all environmental laws and regulations associated with the development of the cemetery. The need for burial expansion is to ensure a sufficient capacity of various types of interment sites, crypts, and columbaria beyond 2020. Without implementation of the Proposed Action, the DFW National Cemetery is expected to reach capacity in developed areas within 3 years, which would lead to scheduling conflicts due to an insufficient number of committal service shelters.

Dredging and maintenance of Veterans Lake and a portion of the wetland mitigation area is necessary in order to maintain compliance with the original CWA Section 404 Nationwide Permit that approved construction of the lake. The proposed action will restore hydrological characteristics to the lake and a reach of Nancy's Creek that are required in perpetuity as mitigation measures for the original loss of a section of Nancy's Creek when Veterans Lake was built.

2.2 Action Alternatives

This section describes the two alternatives that will be analyzed in the EA (No Action Alternative and Preferred Alternative). The alternatives were selected based on their potential to satisfy the purpose and need, specifically to provide expanded capacity for interment services at the DFW National Cemetery. As viewed by the CEQ, an alternative is considered reasonable if it is deemed to be "practical or feasible" from a "technical and economic" standpoint. The selection of alternatives took into account future expansion needs at the DFW National Cemetery, which is not expected to reach its capacity for interments until 2060.

2.1.1 No Action Alternative

The EA will include the alternative of No Action, which allows the VA to compare the potential impacts of the Proposed Action to the known impacts of maintaining the status quo. Establishing a baseline also assists in conducting an informed and meaningful consideration of potential alternatives. Under the No Action Alternative, none of the improvements or new construction activities would be implemented. The DFW National Cemetery currently has nearly 416 acres in undeveloped land and 167.5 acres developed. The current gravesite usage (for casketed, in-ground cremains, and columbaria niches) is approximately 3,900 annually. The DFW National Cemetery has 8,389 remaining pre-placed crypts and 6,091 remaining columbaria niches. Once these sites are utilized, the Dallas-Fort Worth veteran population

⁵ Cremain burial plot: an in-ground burial of cremated remains ("cremains").

would no longer have reasonable access to federal burial options. Additionally, recent increased demands have resulted in scheduling conflicts at the current committal shelters.

Without sediment removal and implementation of proposed maintenance to sediment controls, Veterans Lake would eventually silt in and become vegetated. The wetland mitigation area to the south of Veterans Lake would further lose its hydrologic characteristics, which were designed and required by the 1998 wetland mitigation plan and later revisions to this plan. Loss of deep-water habitat (i.e., Veterans Lake) and unapproved alterations to the hydrology of the wetland mitigation area are violations of the 1998 wetland mitigation plan and later revisions that require the wetland mitigation area to be maintained as designed in perpetuity (Carter and Burgess 1998). The No Action Alternative does not meet the purpose and need for the proposed project but will be carried forward for analysis, as required by CEQ regulations.

2.1.2 Alternative 1. Implement Expansion and Repairs/Improvements (Preferred Alternative)

The Preferred Alternative is to implement the proposed improvements, repairs, and expansion at the DFW National Cemetery. Specifically, the expansion items would include four construction projects:

- 1) A 9,000-niche columbarium along the southwest portion of Lone Star Circle;
- 2) A fourth committal service shelter along the southern portion of Lone Star Circle and adjacent to the proposed location of the columbarium;
- 3) A fourth cortege lane south of the Public Information Center; and
- 4) A burial expansion site south of Lone Star Circle that would provide an additional 8,000 pre-placed crypts, 6,000 in-ground cremain burial plots, and associated roads and landscaping (Figure 2-1).

The new columbarium, committal service shelter, and cortege lane would be built along existing roadways or paved areas. Soil removed from the construction of the columbarium would be used for fill in other unspecified grounds work or maintenance projects at DFW National Cemetery.

The new burial expansion site, identified as Expansion Project 916-CM3-017, would include the creation of new roads that connect to Lone Star Circle at a single intersection. This intersection would be located between the proposed new columbarium and committal service shelter (Figure 2-2). The addition of 8,000 pre-placed crypts and 6,000 in-ground cremain burial plots would be completed in anticipation of the projected depletion of current gravesites by 2025. The layout style and aesthetics of this expansion site would be kept consistent with the existing burial sites at the National Cemetery. The projected impact area for the proposed burial expansion site, including the construction access road and staging area, would be approximately 27 acres.

The dredging of Veterans Lake would include removal of sediments and grading of the lake bottom to original design specifications (Figure 2-2). Dredging of the lake would re-establish a consistent lake bottom depth of 8 feet 6 inches (Figure 2-3). Grading of the lake would begin at a bank elevation of 460 feet (the water surface elevation is 457.5 feet) and would be graded at a 6:1 slope down to a safety edge elevation of 455.5 feet. Grading would continue down from the safety edge elevation at a 3:1 slope until a final lake bottom elevation of 449 feet was reached. Approximately 20,000 cubic yards of material would be removed from the lake during dredging activities. A barge-mounted hydraulic dredge would be used to remove the accumulated sediments. Sediments would either be pumped to disposal sites or would be pumped to dump

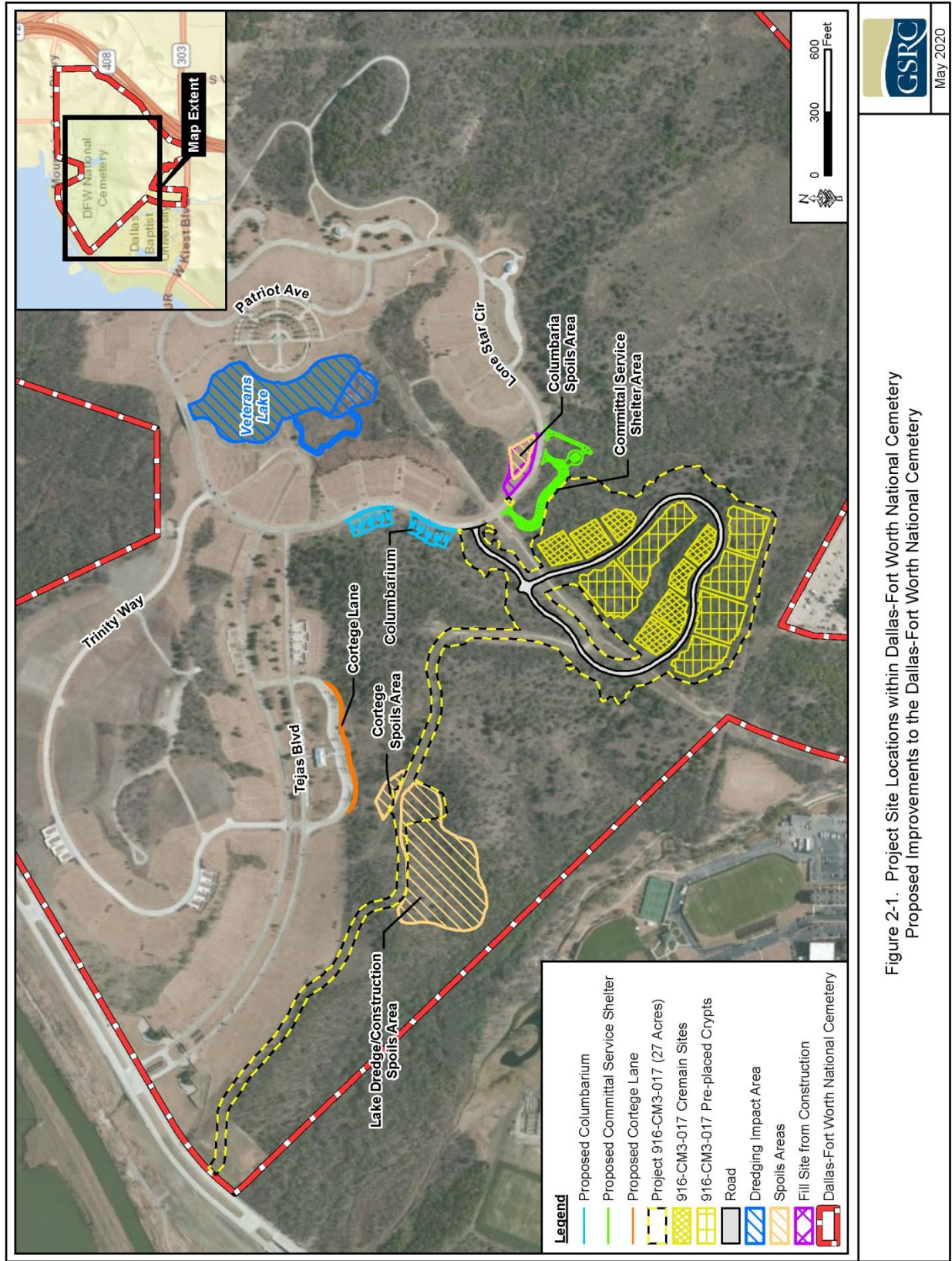
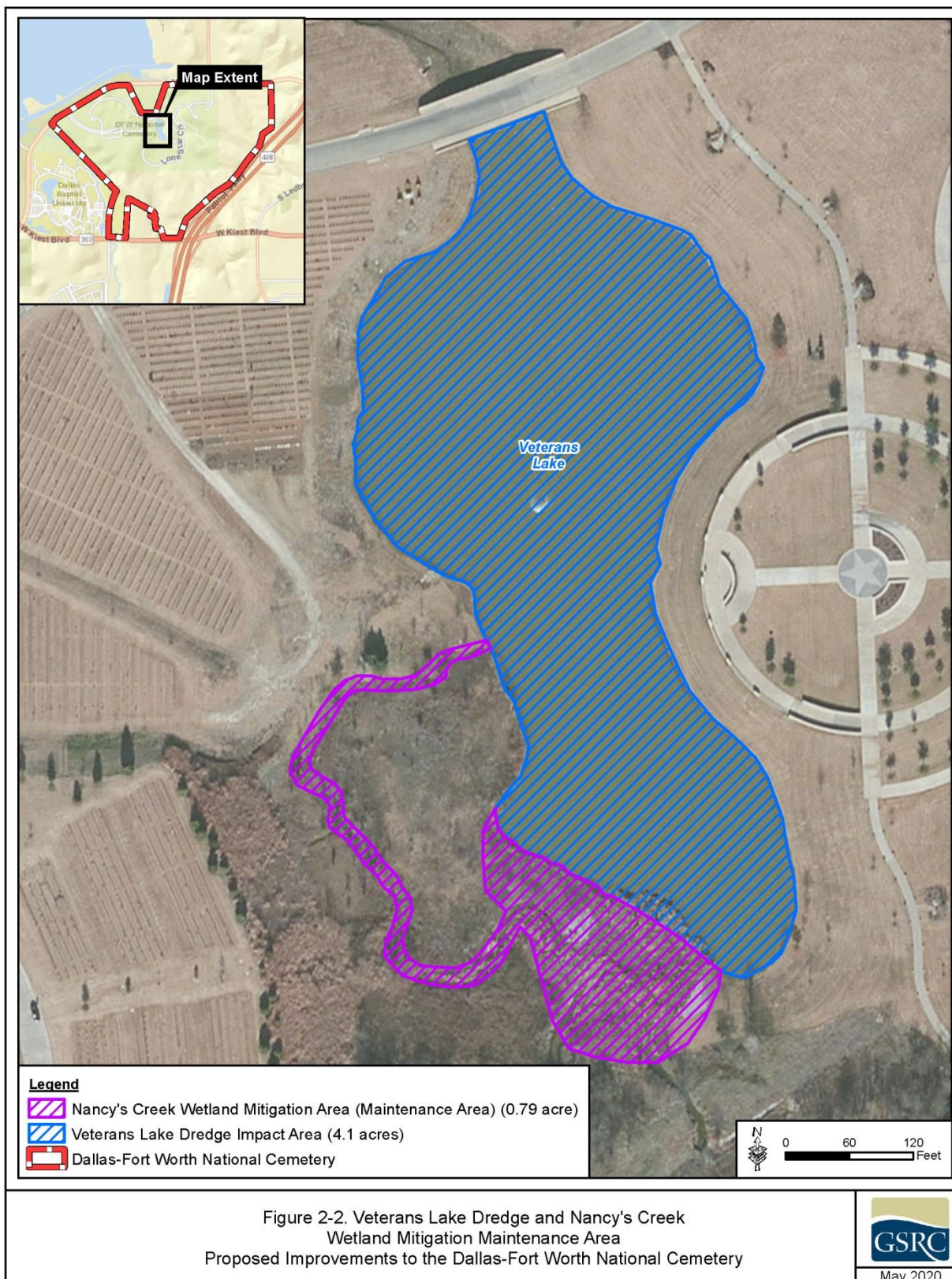


Figure 2-1. Project Site Locations within Dallas-Fort Worth National Cemetery
Proposed Improvements to the Dallas-Fort Worth National Cemetery



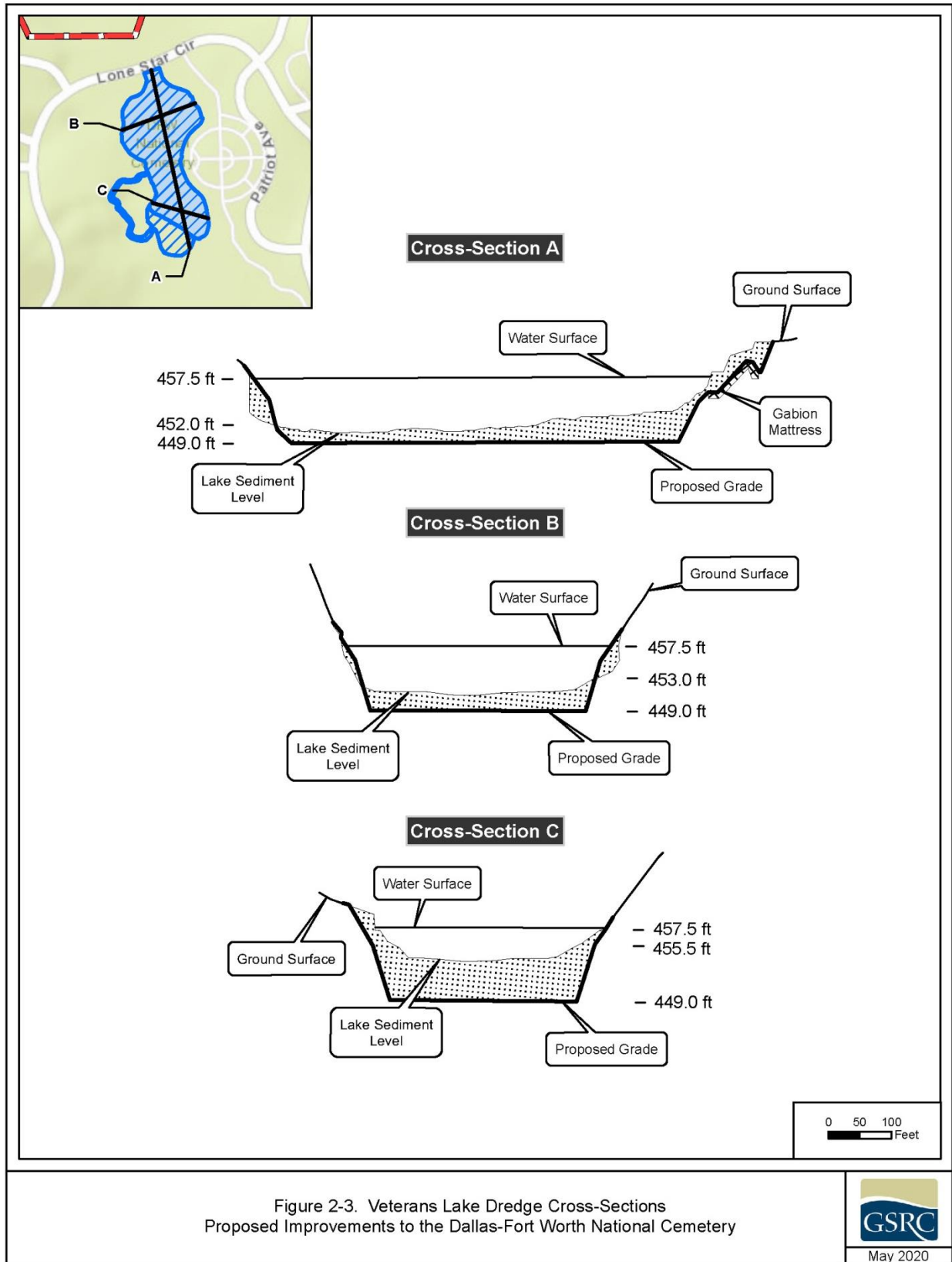


Figure 2-3. Veterans Lake Dredge Cross-Sections
Proposed Improvements to the Dallas-Fort Worth National Cemetery

trucks and then hauled to designated spoils areas. The designated spoils areas are located in upland areas at various locations within the DFW National Cemetery (refer to Figure 2-1).

Clean-out of the Nancy's Creek wetland mitigation area would be comprised of maintenance to erosion control features and dredging of materials from the lower creek channel (Figure 2-2). The maintenance and repair of erosion control features at the southern end of the lake would consist of the removal of built-up sediment and vegetation from previously installed gabion baskets and inspection of the baskets for proper functioning. Up to 5 feet of sediment, as well as vegetation, would be removed from the gabion baskets and deposited in the same spoils areas where lake dredging material would be placed. Sediment would also be removed from up to 600 linear feet of Nancy's Creek in order to restore the flow of water through the main lower channel as originally intended. A Section 404 Nationwide Permit 27 for maintenance and restoration of aquatic areas would be acquired prior to maintenance activities within the wetland mitigation area.

Construction is currently planned to begin in early 2020 and would require approximately 610 days to complete (around March 2022). The expansion activities are expected to provide five additional years of burial capacity. The improvements would all occur within lands currently managed by the VA; no additional land acquisition is required.

2.1.3 Alternatives Eliminated

No other alternatives were considered. All activities would occur on VA lands currently planned for use as a part of the DFW National Cemetery. The 1996 Master Plan for the cemetery laid out the locations and extent of each expansion phase to most effectively develop the VA property in accordance with the goals of the cemetery. Other undeveloped areas within the bounds of the VA property boundary are planned for additional future expansion phases. Use of any of these areas for the current proposed expansion would necessitate a complete re-design or reduction of future cemetery expansions and operations. As such, no other location would be feasible. Furthermore, the types of interment provided are based on recent trends and anticipated future needs. Therefore, an alternative number or different types of facilities is not reasonable.

2.3 Comparative Summary of Alternatives and Impacted Resources

Potential environmental impacts of the Preferred Alternative and the No Action Alternative would be those primarily associated with the ground disturbance required to construct the burial expansion site, columbaria, committal service shelter, roads, and dredging. There is no proposed expansion of the DFW National Cemetery outside its present boundaries and no permanent increase in staff as a result of the Preferred Alternative. Short term impacts could occur due to the dredging and construction activities. Impacts expected to occur under each alternative are described in the following section.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

This section of the EA describes the natural and human environments that exist within the project area and the potential impacts of the Proposed Action. The effects of the Proposed Action include impacts from the construction and maintenance of the proposed new facilities and the dredging of Veterans Lake and a portion of Nancy's Creek. Per CEQ guidance (40 CFR, Part 1502.16), only those resources that have the potential to be impacted by the Proposed Action or any of the alternatives considered are analyzed in this EA.

Impacts (consequence or effect) can be either beneficial or adverse, and can be either directly related to the action or indirectly caused by the action. Direct impacts are those effects that are caused by the action and occur at the same time and place (40 CFR, Part 1508.8[a]). Indirect impacts are those effects that are caused by the action and are later in time or further removed in distance, but that are still reasonably foreseeable (40 CFR, Part 1508.8[b]). The Proposed Action and alternative may create temporary (lasting the duration of construction), short-term (up to 3 years), long-term (greater than 3 years), or permanent impacts or effects.

Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis, the intensity of impacts will be classified as negligible, minor, moderate, or major. The intensity thresholds are defined as follows:

- **Negligible:** A resource would not be affected or the effects would be at or below the level of detection, and changes would not result in any measurable or perceptible consequences.
- **Minor:** Effects on a resource would be detectable, although the effects would be localized, small, and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse effects, would be simple and achievable.
- **Moderate:** Effects on a resource would be readily detectable, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.
- **Major:** Effects on a resource would be obvious, long-term, and would have substantial consequences on a regional scale. Extensive mitigation measures to offset the adverse effects would be required and success of the mitigation measures would not be guaranteed.

The affected environment and anticipated environmental consequences of the construction of DFW National Cemetery were assessed in the *Environmental Impact Statement for a National Cemetery to Serve the Dallas-Fort Worth Area*, April 1992; where appropriate, that information is hereby incorporated by reference.

The following resources would not be significantly affected by the Proposed Action and are not addressed in this EA:

- **Aesthetics:** The Proposed Action would not change the long-term aesthetics of DFW National Cemetery. DFW National Cemetery is situated on a 583.5-acre parcel of land that encompasses developed and undeveloped portions of land. The proposed expansion is within the established cemetery boundary, and the facilities would be designed similar to the existing structures within the cemetery. Though a portion of undeveloped land would be converted to developed land, the overall aesthetic of a cemetery surrounded by forested hillsides would not change. Temporary negligible adverse impacts to aesthetics would occur during lake dredging and construction along existing roadways in the cemetery. If desired by appropriate VA personnel, temporary construction barriers may be placed around portions of Veterans Lake or construction areas to mitigate aesthetic effects to the cemetery. Whenever possible, burial services would be scheduled to occur during periods of minimal or no construction.
- **Land Use:** No change in land use would occur, nor would any change to surrounding land uses be expected as a result of the Proposed Action. The proposed expansion and maintenance activities would occur within the existing boundaries of DFW National Cemetery. No new land would be acquired for the Proposed Action.
- **Noise:** There would be a minor increase in the ambient noise levels resulting from the heavy machinery, vehicles, and tools used during the construction of the Proposed Action. This noise would be intermittent, temporary, and limited to daylight hours. With the exception of the construction access road entrance, all project areas are within the interior of the property boundary and have a buffer of forested land between the project areas and adjoining properties. Construction noise is not expected to carry beyond the boundaries of DFW National Cemetery. Burial services would be scheduled when possible to avoid conflict with construction to minimize noise impacts on services.
- **Community Services:** There would be no impact from the Proposed Action on existing police, fire, and other agencies serving DFW National Cemetery. Funeral services at DFW National Cemetery would not be delayed or interrupted by the Proposed Action.
- **Solid and Hazardous Materials:** There would be no impact on solid and hazardous materials. No hazardous materials would be generated by the Proposed Action. All waste associated with construction would be disposed of in accordance with policies of the cemetery.
- **Transportation and Parking:** There would be no impact on the transportation infrastructure providing access to DFW National Cemetery. The Proposed Action would not necessarily increase the daily use of DFW National Cemetery, but would extend its life span to better service the veterans and their families in the Dallas-Fort Worth area. Construction activities and equipment staging would be limited to the proposed construction access road and staging area which would be separate from and off-limits to the public. The entrance to the cemetery (as well as the entrance to the construction access road) is located on Mountain Creek Parkway, which is a large four-lane road with minimal traffic. Even with multiple concurrent construction projects occurring at DFW National Cemetery, no traffic stoppages or delays are anticipated on Mountain Creek Parkway. Signs will be placed along Mountain Creek Parkway notifying the public of potential increased construction traffic.

- **Utilities:** There would be no impact from the Proposed Action on existing natural gas, electric, sewer, or communications infrastructure serving DFW National Cemetery. Potable water is obtained from the city, and it is expected that the Proposed Action would not increase the cemetery's use of potable water for irrigation, as these areas are currently irrigated. A utility line right-of-way transects the proposed burial expansion area, but no impacts to this utility are expected. Coordination with the utility company (Oncor) has been established during the project planning phase.
- **Environmental Justice:** The expansion and maintenance activities would take place within the boundaries of DFW National Cemetery. There are no minorities or low-income population groups living adjacent to the cemetery, so the Proposed Action would have no impacts on environmental justice.

3.1 Cultural Resources

3.1.1 Affected Environment

Section 106 of the National Historic Preservation Act (16 U.S.C. § 470[f]) requires a Federal agency to take into account the effects of the agency's undertakings on properties included on or eligible for the National Register of Historic Places (NRHP) and prior to approval of an undertaking, to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. Archaeological investigations undertaken in 1994 and 2002 in support of the development of the cemetery identified three archaeological sites within a 1-mile radius of the proposed cemetery. Consultations with the Texas Historical Commission in support of this EA concluded that additional surveys should be conducted due to the time span between the previous surveys. As such, additional pedestrian surveys, supplemented with shovel test pits, were undertaken in 2019. The previously identified sites could not be relocated and have likely been destroyed since their recordation (Lindemuth and Carter 2020). None of these sites were located within the area of potential effect for the proposed expansion and improvements activities addressed in this EA.

3.1.2 Environmental Consequences

3.1.2.1 *No Action Alternative*

Under the No Action Alternative, there would be no impacts on cultural resources, as the cemetery would not be expanded, and no maintenance activities would occur in Veterans Lake or the wetland mitigation area.

3.1.2.2 *Alternative 1: Implement Expansion and Repairs/Improvements (Preferred Action)*

There would be no adverse impact on cultural resources. A 2019 archaeological survey of the Proposed Action project area and surrounding area by Gulf South Research Corporation (GSRC) determined that there are no standing structures or sub-surface archaeological deposits eligible for inclusion on the NRHP within the cemetery (Lindemuth and Carter 2020). A concurrence of this finding was sought from the Texas Historical Commission and obtained on February 6, 2020. A copy of the agency concurrence can be found in Appendix A.

If archaeological features or human remains are inadvertently discovered during construction activities, all work would be halted in that area and the State Historic Preservation Officer would be contacted, and appropriate measures would be implemented to mitigate any adverse impacts.

3.2 Soils

3.2.1 Affected Environment

The Proposed Action would occur on an area historically mapped as Ferris-Heiden complex, 5 to 12 percent slopes; Heiden clay, 2 to 5 percent slopes, moderately eroded; and Houston Black clay, 1 to 3 percent slopes soils, which comprise approximately 90 percent of DFW National Cemetery (Figure 3-1). These soils are moderate to deep, well-drained, gently rolling to rolling soils found on hillsides and uplands (U.S. Department of Agriculture Natural Resources Conservation Service [USDA NRCS] 2019a). Their available water storage capacity is moderate, permeability is very slow, and their runoff is rapid. The erosion hazard of these soils is severe (USDA NRCS 2019a). The Houston Black clay soils are designated as prime farmland soils (USDA NRCS 2019b). Houston Black Clay, 1 to 3 percent slopes, is mapped as occupying 6.0 acres within the project area (USDA NRCS 2019b). The soils within the project area have already been exposed to moderate disturbance (e.g., compaction, erosion) by long-term cattle grazing prior to acquisition of the property by the VA (VA 1992).

The Farmland Protection Policy Act (FPPA) of 1981 (7 U.S.C. § 9601) attempts to limit Federal actions that diminish, reduce, or convert farmland from agricultural use to non-agricultural use. The entire property has been designated for cemetery development and use. Projects on land already in or committed to urban development or water storage are not subject to the FPPA [Section 1540(c)(1)(A), 7 U.S.C. § 4201(c)(1)(A)]. Section 658.2(a), provides that prime farmland is “committed to urban development or water storage” if a local zoning code or ordinance or current local comprehensive land use plan designated this land for commercial or industrial use or for residential use that is not intended at the same time to protect farmland.

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

Under the No Action Alternative, the cemetery would not be expanded and no maintenance activities would occur in Veterans Lake or the wetland mitigation area. Minor adverse impacts to soils would occur because plant communities dominated by invasive woody species and introduced grass species would continue to persist in the project area. Sediment would continue to accumulate in the Nancy’s Creek wetland mitigation area and Veterans Lake.

3.2.2.2 Alternative 1: Implement Expansion and Repairs/Improvements (Preferred Alternative)

Under the Proposed Action, approximately 4.9 acres of soil would be temporarily disturbed and 35.9 acres of soil would be permanently disturbed within the project area. Permanent disturbances are considered to be those disturbances that would occur for the purpose of construction and development, which includes disturbances in the proposed construction areas, the construction access road area, and spoils areas (where new and potentially different soil types would be placed). Temporary disturbances would occur in the Veterans Lake and Nancy’s Creek wetland mitigation area during maintenance activities. Permanent impacts to soils would occur from vegetation removal, grading activities, vehicle movement, and sediment deposition that would be necessary to construct the proposed expansion areas. Approximately 10 inches of the top layer(s) of soil would be disturbed during these activities. Furthermore, up to 8 feet of soil would be disturbed during each burial that would occur at the new in-ground interment area. Additional temporary, negligible impacts on soils in the construction areas would consist of possible erosion during construction activities and the stockpiling of soil.

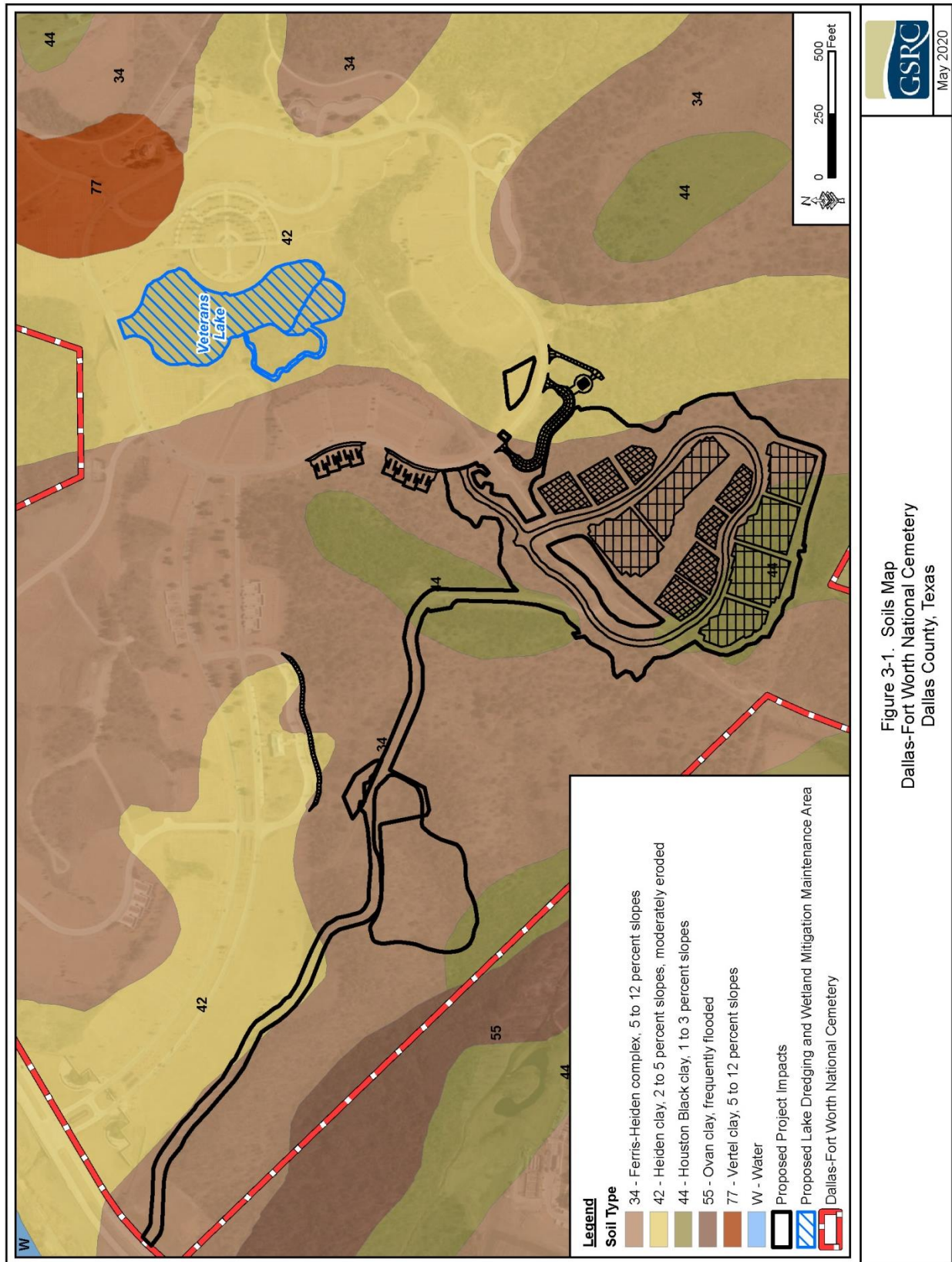


Figure 3-1. Soils Map
Dallas-Fort Worth National Cemetery
Dallas County, Texas

Temporary impacts in the vicinity of the wetland mitigation area would occur while construction personnel were removing sediment from the Nancy's Creek channel and transporting equipment for dredging of Veterans Lake. The removal of newly deposited sediment from Nancy's Creek and Veterans Lake is not considered to be in itself a disturbance of natural soil layers or soil structure in the area. This sediment has been deposited in the creek channel and lake in the last 14 years from downstream transportation and bank erosion. The creek channel and area now occupied by the lake have already been disturbed by anthropogenic activities, so that natural sedimentation processes are no longer present. Under undisturbed conditions (i.e., prior to lake creation and channel modification), sediments from Nancy's Creek would continue to be transported downstream through the West Fork Trinity River watershed. Prevention of downstream sedimentation caused by removal of these sediments by the Proposed Action cannot be a consideration as the West Fork Trinity River watershed immediately downstream from DFW National Cemetery has been converted to an artificial state by the creation and maintenance of Mountain Creek Lake. Natural sedimentation processes downstream do not occur because of this artificial lake. Further, the amount of sediment proposed to be dredged is negligible compared to the total sediment inputs to Mountain Creek Lake from all upstream and bank sources.

The direct impact from the permanent disturbance and removal from biological production of approximately 35.9 acres of soil (of which 6.0 acres are prime farmland soils) would be minor due to the small size of the project footprint relative to the extent of the same soils throughout the region. Soil from construction would be stockpiled and Best Management Practices (BMPs) would be utilized to control soil movement (see Section 5.0). The BMPs would include, but are not limited to, watering roads, silt fences, waddles, and covering soil stockpiles. These BMPs would control fugitive dust and reduce erosion potential. All appropriate permits, including a Texas Pollution Discharge Elimination System (TPDES) Construction General Permit (CGP), would be obtained prior to construction.

3.3 Air Quality

3.3.1 Affected Environment

The USEPA established National Ambient Air Quality Standards (NAAQS) for specific pollutants determined to be of concern with respect to the health and welfare of the general public. Ambient air quality standards are classified as either "primary" or "secondary." The major pollutants of concern, or criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ground-level ozone (O₃), particulate matter less than 10 microns (PM-10), particulate matter less than 2.5 microns (PM-2.5), and lead (Pb). NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. The NAAQS are shown in Table 3-1.

Areas that do not meet these NAAQS are called non-attainment areas; areas that meet both primary and secondary standards are known as attainment areas. The Federal General Conformity Rule (40 CFR Parts 51 and 93) specifies criteria and requirements for conformity determinations of Federal projects. The General Conformity Rule was produced in 1993 by the USEPA, following the passage of Amendments to the Clean Air Act in 1990. The rule mandates that a conformity analysis be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for one or more NAAQS. The USEPA has designated Dallas County as in attainment for all NAAQS with the exception of ground-level ozone, for which it is in non-attainment (Texas Commission on Environmental Quality [TCEQ 2019b], 40 CFR Part 81). Due to Dallas County's non-attainment

status for ground-level ozone, a conformity analysis has been performed for proposed activities at DFW National Cemetery and is described here.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Times
Carbon Monoxide	9 ppm (10 mg/m ³)	8-hour ⁽¹⁾	None	None
	35 ppm (40 mg/m ³)	1-hour ⁽¹⁾	None	None
Lead	0.15 µg/m ³ ⁽²⁾	Rolling 3-Month Average	Same as Primary	Same as Primary
	1.5 µg/m ³ ⁽³⁾	Quarterly Average	Same as Primary	Same as Primary
Nitrogen Dioxide	53 ppb ⁽⁴⁾	Annual (Arithmetic Average)	Same as Primary	Same as Primary
	100 ppb	1-hour ⁽⁵⁾	None	None
Particulate Matter (PM-10)	150 µg/m ³	24-hour ⁽⁶⁾	Same as Primary	Same as Primary
Particulate Matter (PM-2.5)	12.0 µg/m ³	Annual ⁽⁷⁾ (Arithmetic Average)	15.0 µg/m ³	Annual ⁽⁷⁾ (Arithmetic Average)
	35 µg/m ³	24-hour ⁽⁸⁾	Same as Primary	Same as Primary
Ozone	0.070 ppm (2015 std)	8-hour ⁽⁹⁾	Same as Primary	Same as Primary
Sulfur Dioxide	75 ppb ⁽¹⁰⁾	1-hour	0.5 ppm	3-hour ⁽¹⁾

Source: USEPA 2020a at <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

Note: Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb - 1 part in 1,000,000,000) by volume, milligrams per cubic meter of air (mg/m³), and micrograms per cubic meter of air (µg/m³).

⁽¹⁾ Not to be exceeded more than once per year.

⁽²⁾ Final rule signed October 15, 2008.

⁽³⁾ In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.

⁽⁴⁾ The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard

⁽⁵⁾ To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).

⁽⁶⁾ Not to be exceeded more than once per year on average over 3 years.

⁽⁷⁾ To attain this standard, the 3-year average of the weighted annual mean PM-2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

⁽⁸⁾ To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective December 17, 2006).

⁽⁹⁾ (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm (effective December 28, 2015).

(b) The previous (2008) O₃ standards (0.075 ppm) additionally remain in effect in some areas.

⁽¹⁰⁾ The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a State Implementation Plan (SIP) call under the previous SO₂ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its SIP to demonstrate attainment of the required NAAQS.

A conformity analysis is the process used to determine whether a Federal action meets the requirements of the General Conformity Rule. The General Conformity Rule prohibits any Federal action that does not conform to the applicable air quality attainment plan or State Implementation Plan (SIP) and applies to areas designated as non-attainment or maintenance from NAAQS. It requires the responsible Federal agency to evaluate the nature of a proposed action and associated air pollutant emissions and calculate emissions that may result from the implementation of the proposed action. If the emissions exceed established limits, known as *de minimis* thresholds, the project proponent is required to perform a conformity determination and implement appropriate mitigation measures to reduce air emissions. A project is exempt from the conformity rule if the total net project-related emissions (construction and operation) are less than *de minimis* thresholds.

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

Under the No Action Alternative, there would be no impacts on air quality, as the cemetery would not be expanded and no dredging or maintenance activities would occur in Veterans Lake or the wetland mitigation area.

3.3.2.2 Alternative 1 - Implement Expansion and Repairs/Improvements (Preferred Alternative)

Under Alternative 1, temporary and minor increases in air pollution would occur from the operation of construction equipment (combustion emissions) and the disturbance of soils (fugitive dust) during cemetery expansion and maintenance activities. No permanent impacts to air quality would occur from the Proposed Action as no permanent increase in machinery, equipment, or vehicle operations would result from the Proposed Action.

The estimated total emissions for non-attainment pollutants from proposed temporary construction activities were calculated to compare to the *de minimis* thresholds for NAAQS. Calculations were performed using the MOVES2014b modelling program (USEPA 2020b). Summaries of the total emissions for construction activities are presented in Table 3-2. Details of the air emissions calculations are presented in Appendix B. Assessments of only two air pollutants (volatile organic compounds [VOCs] and nitrous oxides) were performed. These pollutants are precursors to ground-level ozone, for which Dallas County is in non-attainment. Dallas County is in attainment for all other air pollutants.

Table 3-2. Total Air Emissions (tons/year) from Cemetery Expansion and Maintenance Activities versus the *de minimis* Threshold Levels

Pollutant	2020-21 Construction Year	2021-2022 Construction Year	<i>de minimis</i> Threshold
Volatile Organic Compounds (VOC)	0.81	0.48	100
Nitrous Oxides (NO _x)	10.89	6.60	100

Source: 40 CFR 51.853 and GSRC model projections (Appendix B).

(1) Note that Dallas County is in attainment for all NAAQS except ground-level ozone.

Several sources of air pollutants would contribute to the overall air impacts of the cemetery expansion and maintenance activities. The air emissions results in Table 3-2 include emissions from the following:

1. Combustion engines of construction equipment
2. Workers commuting to and from work
3. Trucks delivering equipment to the proposed project site

As the project site is in a non-attainment area for NAAQS, the Federal conformity *de minimis* thresholds are used as a benchmark to make the conclusion that air emissions from the Proposed Action Alternative do not exceed *de minimis* thresholds (see Table 3-2). There would be no violations of air quality standards and no conflicts with the SIP; consequently, the impacts on air quality in Dallas County from the implementation of the Proposed Action Alternative would be minor, temporary, and less than significant. During cemetery expansion and maintenance activities, proper and routine maintenance of all vehicles and other construction equipment would be implemented to ensure that emissions are within the design standards of all construction equipment. Additionally, dust suppression methods will be implemented to minimize fugitive dust, including wetting solutions applied to construction areas.

3.3 Water Resources

3.3.1 Affected Environment

3.3.1.1 Groundwater

DFW National Cemetery is located within the bounds of the Trinity aquifer (major aquifer⁶), which is one of the most extensive and highly used aquifers in Texas (George et al. 2011). In Dallas County, the Woodbine aquifer (minor aquifer) overlays the larger Trinity Aquifer and is the shallowest potable groundwater aquifer in the area of the Proposed Action. The Woodbine aquifer reaches a depth of approximately 600 feet below ground surface (George et al. 2011). Drilling at a well at Dallas Baptist University approximately one mile south of the project area measured a water depth of 476 feet below ground surface (State of Texas Well Report #290936, 2012). Water in the Woodbine aquifer within 1,500 feet of ground surface is typically fresh, with levels of salinity increasing with depth (George et al. 2011). Water quality varies throughout the aquifer. The upper zone is often high in iron content and a small percentage of wells exceed the maximum level of fluoride set for water quality (Reedy et al. 2011). The Woodbine aquifer is used as a primary source of water for domestic use, but it is separated from the ground surface by an impervious clay formation that would preclude any contamination from surface sources (VA 1992). Some near-surface perched water table aquifers may be present around the project area, depending on the amount of rainfall, but these shallow aquifers would be high in mineral content with low production potential and are used only for agricultural irrigation (VA 1992).

3.3.1.2 Surface Water

The CWA of 1972, as amended (33 U.S.C. §§ 1251 et seq.), is the guiding law for protection of waterbodies, including ponds, lakes, and streams, and the condition of these waters in regards to both human health and ecological well-being. Waters of the U.S. are defined within the CWA of 1972, and jurisdiction is addressed by USACE and the U.S. Environmental Protection Agency (USEPA). Wetlands are a subset of waters of the U.S. that may be subject to regulation under Section 404 of the CWA (40 CFR 230.3). Wetlands are those areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Activities that result in the dredging and/or filling of waters of the U.S., including wetlands, are regulated under Sections 401 and 404 of the CWA. As such, any

⁶ Aquifer: Underground layer or formation of water-bearing, permeable rock which supplies groundwater; water is supplied to the aquifer by precipitation and draw-down.

dredging or fill activities within the potential jurisdictional wetland would require a Department of the Army permit for those activities under Section 404 of the CWA. In addition, a TCEQ 401 permit would also have to be obtained prior to any activities within the potentially jurisdictional wetland.

Prior to the construction of Veterans Lake, a Section 404 Nationwide Permit 26 was acquired for the project. The permit approved the construction of Veterans Lake over an existing natural creek channel on the condition that a wetland mitigation area was established on the north end of the newly-created lake. The terms of the permit required that this wetland mitigation area meet the conditions of the wetland mitigation plan in perpetuity (Carter and Burgess 1998). Currently, the lake is filled approximately half-way with sediment, including the portion of the lake which is to be maintained as a deep-water aquatic habitat per the requirements of the wetland mitigation plan. Additionally, the natural channel of Nancy's Creek found immediately upstream from Veterans Lake has been cut off from upstream flow by sediment depositions (see Figure 3-2 below). Water now flows directly south through erosional channel features into Veterans Lake. This redirection of water flow as well as continued sedimentation of Veterans Lake violates the terms of the wetland mitigation plan originally established in 1998 (Carter and Burgess 1998).

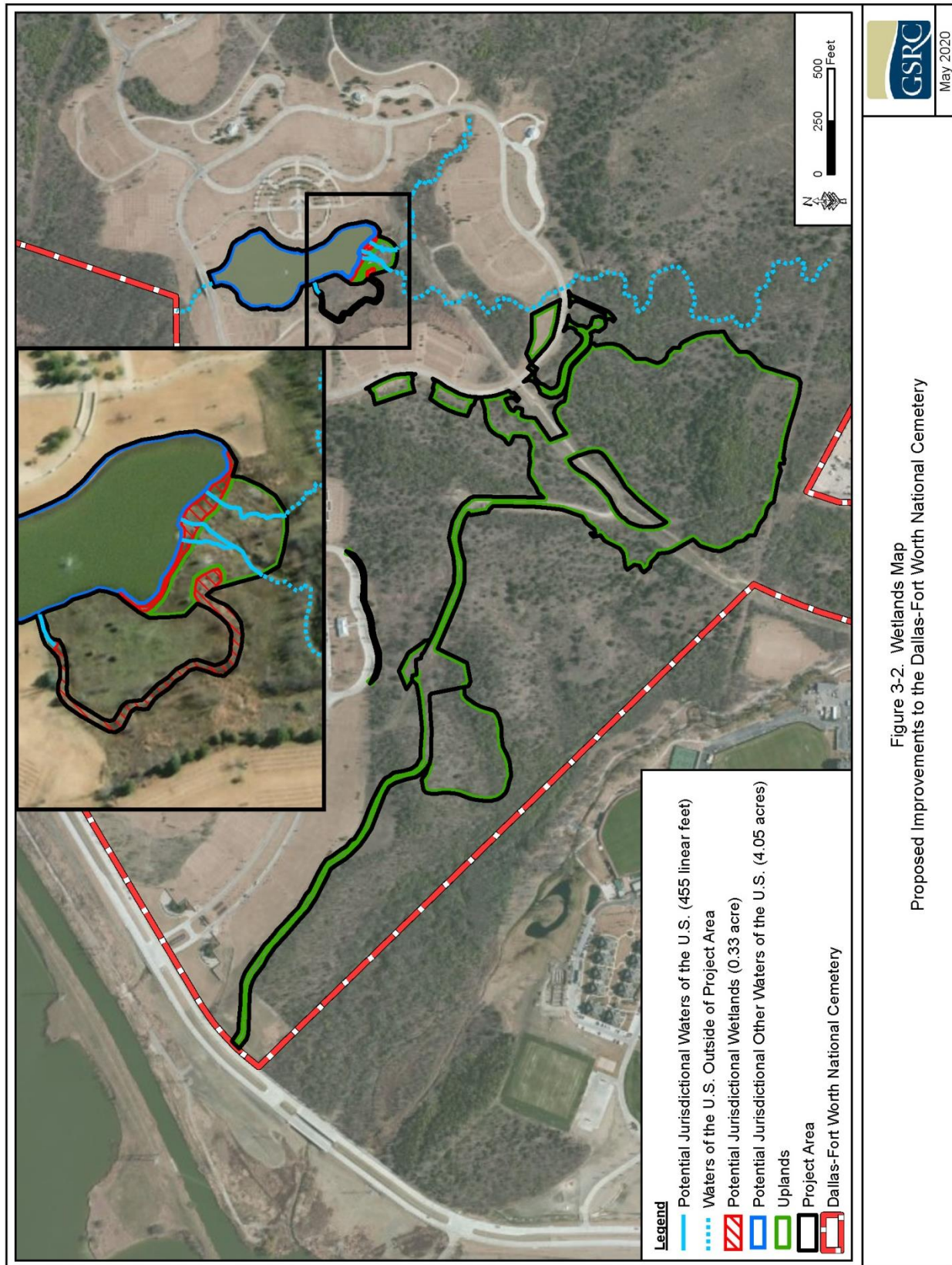
A wetland delineation of the Proposed Action project area was conducted in 2019 (GSRC 2020). The project area was found to contain 0.33 acre of potential jurisdictional wetlands in the form of lake fringe wetlands and an old creek channel (Figure 3-2). Additionally, the project area contains 455 linear feet of potential jurisdictional waters of the U.S. in the form of creek channels and 4.05 acres of potential jurisdictional waters of the U.S. in the form of a man-made lake (i.e., Veterans Lake). All other areas within the project area are considered uplands lacking indicators of wetland hydrology.

The USEPA is responsible for enforcing water quality requirements, often in conjunction with USACE, as defined by the CWA. The CWA § 303(d)(1)(A) requires that each state monitor surface waters and compile a "303(d) List" of impaired streams and lakes. No impaired waterbodies as listed by TCEQ are found within the project area (TCEQ 2019a). Mountain Creek Lake, which is located approximately 0.5 mile downstream from Veterans Lake, has been listed as containing water impairments (TCEQ 2019a). These impairment parameters are dioxin in edible tissue (category – 5a, carryforward – no) and polychlorinated biphenyls (PCBs) in edible tissue (category – 4a, carryforward – no). Both impairments are contaminants that may reside in edible tissue (e.g., fish caught in the reservoir) and that pose a potential health hazard to consumers.

3.3.1.3 Floodplains

A floodplain or flood zone is the area adjacent to a river, creek, lake, stream, or other open waterway that is subject to flooding when there is a major rain event. Floodplains are further defined by the likelihood of a flood event. If an area is in a 100-year floodplain, there is a 1-in-100 chance in any given year that the area would flood. A portion of DFW National Cemetery is within the 100-year floodplain and the 500-year floodplain as per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FEMA 2014 and FEMA 2019a). Predicted flood zones (i.e., flood extents), including the 100-year floodplain and the 500-year floodplain, are shown in Figure 3-3 (FEMA 2020).

The Nancy's Creek floodplain begins southeast of the project area and continues due north as Nancy's Creek flows into Veterans Lake. This stretch of Nancy's Creek is considered to be within a 500-year flood zone, meaning that there is a 0.2-percent annual chance of flooding in



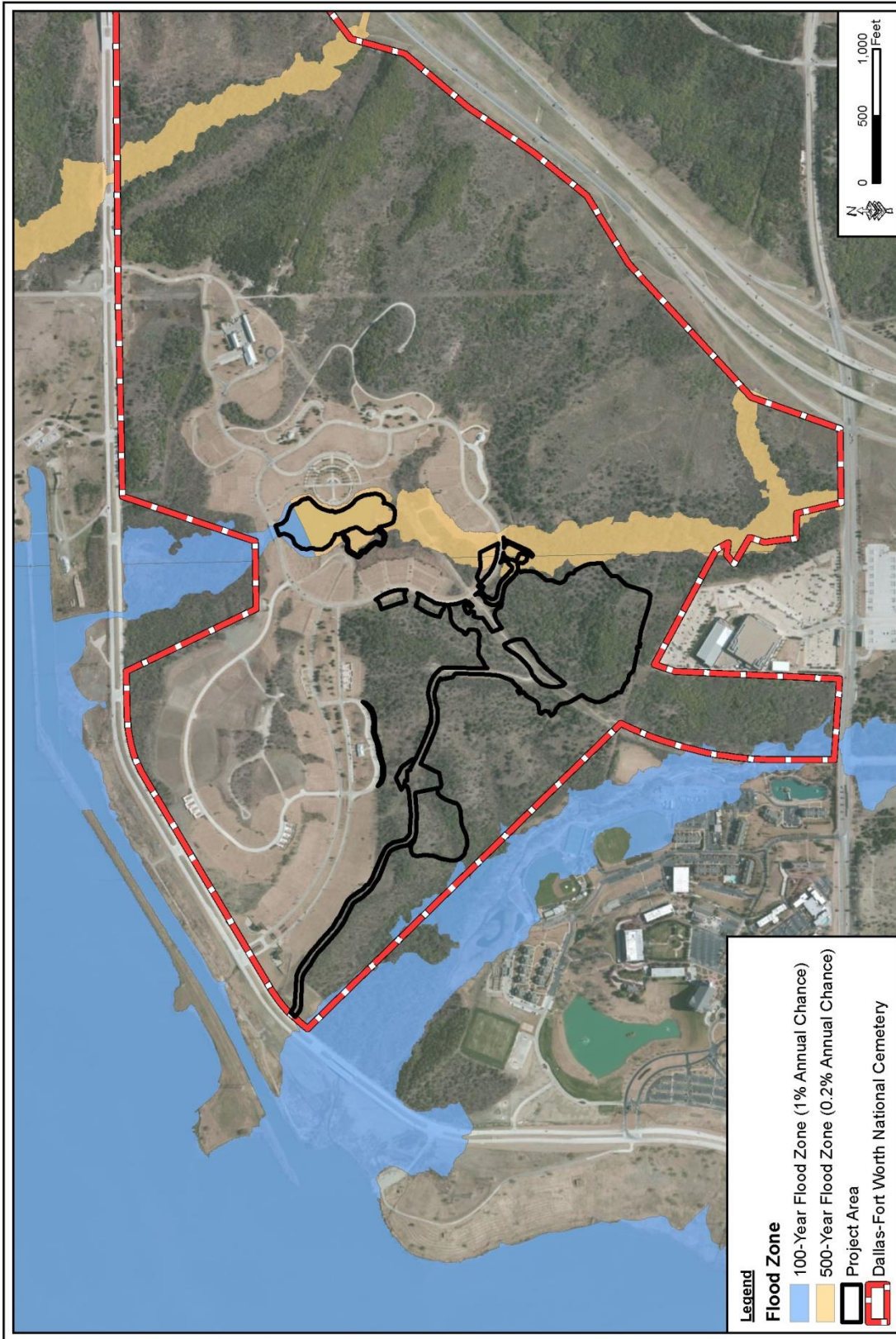


Figure 3-3. FEMA Flood Zones Map (Predicted Extent of Flood Events)
Proposed Improvements to the Dallas-Fort Worth National Cemetery

this area. A portion of the committal service shelter as well as the majority of the committal service shelter spoils area is located within this predicted floodplain. The eastern edge of the burial expansion site also abuts the floodplain. A portion of the Nancy's Creek wetland mitigation area and all of Veterans Lake is within a predicted floodplain. A distinction between the 100-year and 500-year floodplains occurs in the middle of Veterans Lake, which indicates that the likelihood of flooding increases further downstream as the tributary approaches Mountain Creek Lake to the north.

Additionally, a very minor abuttal between the proposed lake dredge/construction spoils area boundary and the edge of a 100-year floodplain occurs. This is the floodplain of O'Guinn Creek, a tributary that flows northwest to Mountain Creek Lake. The majority of the proposed lake dredge/construction spoils drains to this tributary (U.S. Geological Survey [USGS] 2018) (Figure 3-4).

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

Groundwater

No impacts to groundwater resources would occur from implementation of the No Action Alternative, as no conditions or activity patterns within the cemetery would change.

Surface Water

Under the No Action Alternative, there would be substantial adverse impacts on surface water resources due to the absence of maintenance and dredging activities within Veterans Lake and the Nancy's Creek wetland mitigation area. Veterans Lake would continue to fill with sediment and eventually lose all or nearly all of its water-holding capacity. Water has already been blocked from a lower reach of Nancy's Creek due to sediment deposition. This reach no longer is the primary route of water flow into Veterans Lake; rather, water flows due north directly over the gabions installed as erosion-prevention infrastructure. Without implementation of the Proposed Action, the lower reach of the creek may become further disconnected from its original water source (i.e., upper reaches of Nancy's Creek) and lose all of its hydrologic characteristics. The resulting effects of the No Action Alternative would violate the terms of the Section 404 Nationwide Permit 26 originally approved in 1998 prior to the construction of Veterans Lake.

Floodplains

Under the No Action Alternative, there would be negligible adverse impacts on floodplains, as the cemetery would not be expanded and no maintenance activities would occur in Veterans Lake or the wetland mitigation area. Sediment would continue to be deposited into Veterans Lake and over time, the lake would fill in and likely result in the re-establishment of a tributary or creek channel similar to conditions prior to construction of the lake. Without removal of sediment, the floodplain would have less water-holding capacity.

3.3.2.2 Alternative 1: Implement Expansion and Repairs/Improvements (Preferred Alternative)

Groundwater

There would be negligible adverse impacts on groundwater from the proposed expansion of burial service areas and infrastructure. The burials in the cemetery occur in unsaturated soils, which would minimize the potential for water interaction with buried cadavers and embalming fluids, and any chemicals released would not migrate to the potable aquifer. It is possible that perched subsurface groundwater within several feet of the surface could have an increase in nitrates, which would tend to invigorate the growth of vegetation in the cemetery (VA 1992).

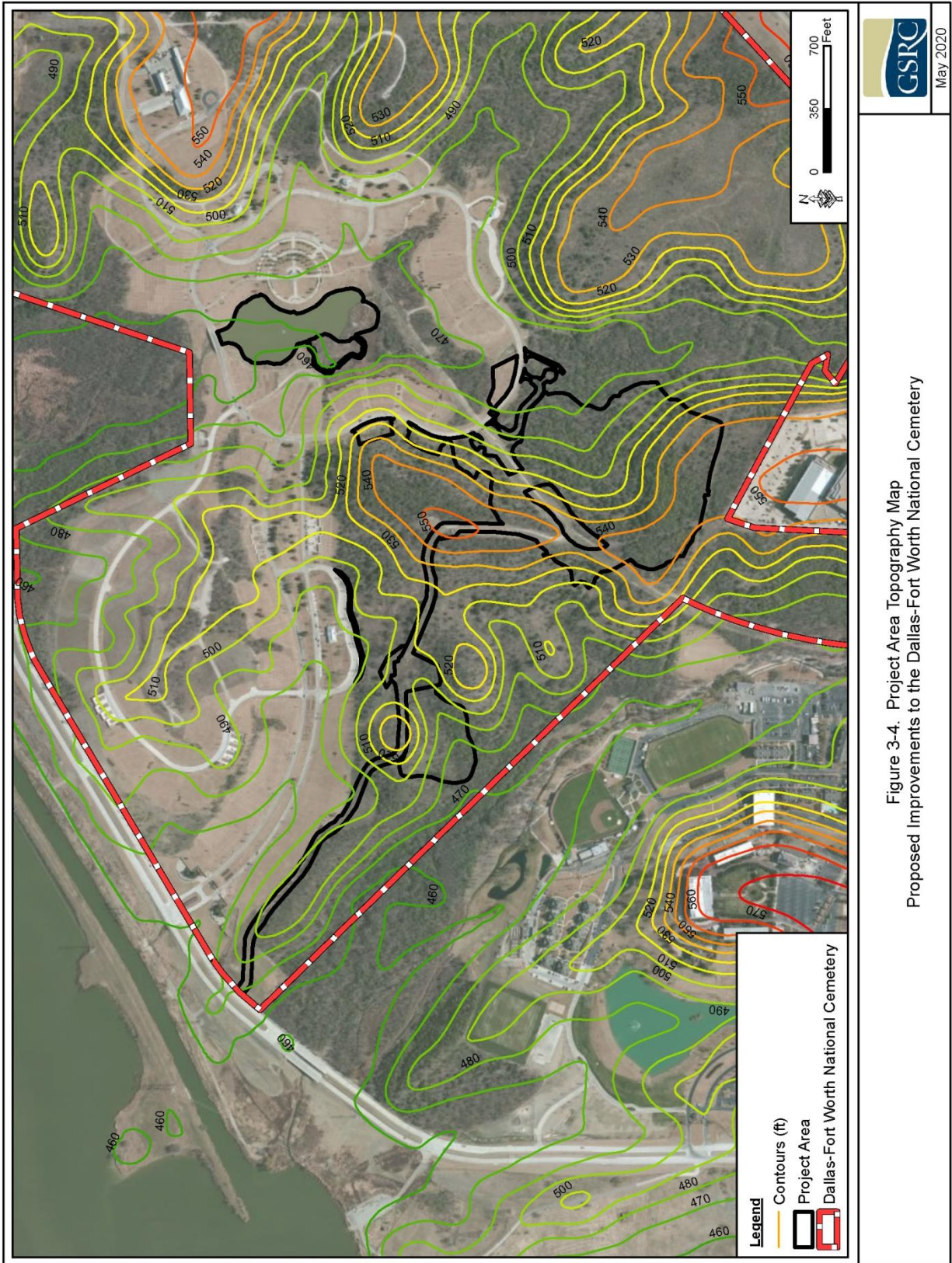


Figure 3-4. Project Area Topography Map

Measures would be taken to offset potential temporary adverse impacts to groundwater during construction (e.g., stormwater runoff). Any adverse impacts to groundwater associated with project-related runoff would be minimized by the stormwater management measures discussed under Surface Water, below.

Surface Water

No permanent adverse impacts to wetlands or waters of the U.S. would occur as a result of implementation of the Proposed Action. Proposed project areas for cemetery expansion activities do not contain any potential jurisdictional waters of the U.S. Maintenance and improvement activities within the proposed Veterans Lake and Nancy's Creek wetland mitigation area would provide beneficial long-term impacts to waters of the U.S., including wetlands. Maintenance within these areas would specifically occur to restore the intended function of the lake and mitigation area as deepwater aquatic habitat and wetland habitat, respectively. Dredging of Veterans Lake would restore the depth of the lake to approximately 8.5 feet. Despite short-term negligible disturbances to animals and plants residing in the lake at the time of dredging, overall long-term beneficial impacts to waters of the U.S. would occur as a result of the maintenance of the area as an aquatic habitat.

The Proposed Action may potentially have temporary, negligible impacts on surface waters as a result of increases in erosion and sedimentation during periods of construction in the proposed improvement areas. Disturbed soils and hazardous substances (i.e., antifreeze, fuels, oils, and lubricants) could directly impact water quality during a rain event. However, due to the limited amount of surface waters present around the proposed expansion and spoils areas and through the use of BMPs, these impacts would be minimized. A Construction Stormwater General Permit would be obtained prior to construction, and this would require approval of the site-specific Stormwater Pollution Prevention Plan (SWPPP). A site-specific Spill Prevention, Control, and Countermeasure Plan (SPCCP) would also be in place prior to the start of construction. BMPs outlined in these plans would reduce potential migration of soils, oil and grease, and construction debris into local surface waters (also see Section 5.0 of this EA). Once the construction project is complete, any temporary construction areas (e.g., the proposed construction staging area) would be revegetated with native vegetation, as outlined in the SWPPP, which would mitigate the potential of non-point source pollution to enter local surface waters.

Removal of sediment from the lower reach of Nancy's Creek and maintenance to gabion baskets would be beneficial to the hydrologic connectivity and functioning of this lower reach. These actions would restore the primary route of water flow through this reach and would promote the retention of the riparian habitat of the channel. Implementation of the Proposed Action would fulfill the requirements of the original Section 404 permit and mitigation plan, which are currently at risk of being violated by the developing conditions at Veterans Lake and the wetland mitigation area. An additional Section 404 Nationwide Permit 27 for maintenance or restoration of aquatic areas would be obtained prior to initiation of work within Veterans Lake or the Nancy's Creek wetland mitigation area. No work would occur within these areas until acquisition of a Section 404 permit occurred. Seeding and/or planting of aquatic or wetland plant species on the southern end of the lake (wetland fringe) should occur after dredging to mitigate for lost vegetation from sediment deposition and to prevent future erosion along the south bank.

Additionally, dredging of Veterans Lake and the wetland mitigation area may release contaminants/pollutants from the accumulated sediment into the surrounding water network. Prior to any dredging, testing for sediment and/or water contamination would occur in

accordance with the approved TPDES CGP (TCEQ 2018). If contaminants were found within materials to be dredged, requirements for alternate disposal of these sediments would be required by the TPDES CGP. Any addition to PCB concentrations in Mountain Creek Lake from dredging activities would be negligible. Primary major inputs of PCBs to waterbodies within Dallas County have been identified as lubricants, insulators, coolants, electrical transformers, railroad yards, packing plants, and grain elevators (USFWS 1988).

Floodplains

The USACE, Fort Worth District, has reviewed FEMA's eight-step process for projects located in 100-year floodplains or wetlands and has met and followed the process accordingly (FEMA 2019b). Therefore, the Proposed Action is in accordance with Executive Order (E.O.) 11988 and would result in minimal impacts on floodplain resources. A walk-through of the FEMA eight-step process can be found in Appendix C.

The Proposed Action would not increase the risk or impact of floods on human safety, health, and welfare, or adversely impact the beneficial values that floodplains serve. Additionally, the Proposed Action would not increase duration, frequency, elevation, velocity, or volume of flood events. Although a portion of the proposed committal service shelter area and committal service shelter spoils area are located within the 500-year floodplain, the proposed construction activities would not cause a significant impact on, or loss of, floodplain resources. A culvert running under Lone Star Circle (road) is located immediately east of the proposed committal service shelter area. This culvert is designed to be able to support high-flow rain events and would not be at risk of failing due to the loss of a small portion of 500-year floodplain (Photograph 3-1). The Proposed Action would not interrupt the natural flow of water and would remove a negligible amount of area within the floodplain relative to the entire area of the Nancy's Creek floodplain.



Photograph 3-1. Culvert located east of proposed committal service shelter area.

The O'Guinn Creek 100-year floodplain located immediately south of the proposed lake dredge/construction spoils area would not be impacted by the Proposed Action. BMPs will be established and enforced that prevent the movement of materials from the lake dredge/construction spoils area downhill into the floodplain. These BMPs will include erosion prevention measures; during 2019 surveys, evidence of water movement and erosion were observed on the southern end of the proposed lake dredge/construction spoils area (Photograph 3-2).



Photograph 3-2. The southern edge of the proposed Lake Dredge/Construction Spoils Area, facing north, showing erosional features running downhill south towards O'Guinn Creek.

The proposed dredging of Veterans Lake and improvements to the Nancy's Creek wetland mitigation area would improve the hydrology and water-holding capacity of these project areas. Minor beneficial impacts to the 100-year floodplain which overlays Veterans Lake would occur from implementation of the Proposed Action. Removal of sediment from this floodplain area would increase the amount of area available to hold excess water during flood events.

3.4 Biological Resources

3.5.1 Affected Environment

3.4.1.1 Vegetation

Dallas County lies within the Texas Blackland Prairie Major Land Resource Area (MLRA), as classified by USDA NRCS (USDA NRCS 2008). Historically, this region was occupied by tallgrass or midgrass prairie (i.e., grassland) interspersed by sporadic to frequent patches of woody species (USDA NRCS 2008). Common prairie grasses included big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), little bluestem (*Schizachyrium scoparium*), grama grasses (*Bouteloua* spp.), and Virginia wildrye (*Elymus virginicus*) (USDA NRCS 2008). Groves of live oak (*Quercus virginiana*), hackberries

(*Celtis* spp.), cedar elm (*Ulmus crassifolia*), eastern red cedar (*Juniperus virginiana*), and honey locust (*Gleditsia triacanthos*) were common in the region. Due to human development and disturbances (e.g., livestock grazing, fire suppression), much of the tallgrass prairie has been succeeded by other vegetation communities, often dominated by invasive exotic species and usually trending towards mixed brush or woodland states (USDA NRCS 2008).

The proposed project areas can be classified by vegetation community as follows:

- 27-Acre Burial Expansion Site: Successional Woodland, Disturbed Grassland/Herbaceous Field
- Columbarium Area: Disturbed Grassland/Herbaceous Field, Successional Woodland
- Committal Service Shelter Area: Successional Woodland
- Cortège Lane Area: Maintained (i.e., mowed) Lawn, Successional Woodland
- Spoils Areas: Maintained Lawn, Successional Woodland, Cleared/Disturbed Grassland
- Veterans Lake Area: Disturbed Grassland, Riparian Habitat, Lake Edge Community

A full list of plant species observed during 2019 biological surveys within the project area can be found in Appendix D.

The vegetation community exhibiting the least amount of disturbance or community succession is the little bluestem prairie/savannah found in portions of the original proposed spoils areas and the periphery of the current proposed lake dredge/construction spoils area (Photograph 3-3). Likely, these patches of grassland historically fluctuated in size and extent as compared to surrounding mottes (i.e., groves) of mesquite, hackberry, honey locust, and cedar elm. The grasslands observed in the project areas were bordered by these mottes or more extensive woodlands.



Photograph 3-3. Remnant patch of little bluestem grassland.

Where more extensive disturbances have occurred, such as within much of the 27-acre burial expansion site, prairie communities have been replaced by woody communities. Due to fire suppression and grazing, the areas between tree groves have filled in with additional trees and shrubs including exotic woody species like waxyleaf privet (*Ligustrum quihoui*). Patches of native grassland have diminished in number and more extensive, dense, and homogenous successional woodlands have formed (Photograph 3-4). Typical tree species are eastern red cedar, honey locust, sugarberry (*Celtis laevigata*), mesquite, and osage orange (*Maclura pomifera*).



Photograph 3-4. Successional woodland with a dense mid-story of waxyleaf privet.

Other areas, including much of the wetland mitigation area south of Veterans Lake, the utilities right-of-way running through the 27-acre burial expansion area, and the construction access road right-of-way, are occupied by varying forms of a disturbed grassland or occasionally-mowed herbaceous field (Photograph 3-5). These disturbed grasslands lack perennial bunchgrass species (e.g., little bluestem), but rather are composed of higher densities of switchgrass, Virginia wildrye, foxtails (*Setaria* spp.) and numerous broad-leaved species. Forbs (i.e., broad-leaved plants) include native species such as clasping Venus' looking-glass (*Triodanis perfoliata*), Louisiana vetch (*Vicia ludoviciana*), and spotted beebalm (*Monarda punctata*), as well as exotic introduced species such as spreading hedgeparsley (*Torilis arvensis*).



**Photograph 3-5. Disturbed grassland community
in wetland mitigation area south of Veterans Lake.**

Most of the proposed cortege lane project area and portions of the proposed columbarium project area and columbaria spoils area/fill site are actively maintained as lawn or turf. The dominant species within these areas is Bermuda grass (*Cynodon dactylon*). Other small plant communities include the Veterans Lake wetland edge community and the Nancy's Creek wooded riparian edge community. No woody species are found along the lake edge and the majority of the land around the lake is mowed to the edge. The southern area set aside as a wetland mitigation area has developed hydrophytic vegetation including southern cattail (*Typha domingensis*), spikerushes (*Eleocharis* spp.), and sedges (*Carex* spp.). Aquatic vegetation within the lake is predominantly long-leaved pondweed (*Potamogeton nodosus*) and creeping water-primrose (*Ludwigia peploides*) (Photograph 3-6). Portions of the Nancy's Creek corridor have developed southern cattail stands and riparian tree species include black willow (*Salix nigra*) and Chinese tallow tree (*Triadica sebifera*).



Photograph 3-6. Lake edge community at Veterans Lake.

3.4.1.2 Wildlife

Animal species observed at the DFW National Cemetery are typical of the central Great Plains and woodlands of Texas. Mammals previously observed include coyote (*Canis latrans*), raccoon (*Procyon lotor*), fox squirrel (*Sciurus niger*), and eastern cottontail (*Sylvilagus floridanus*). Other species likely to occur include white-tailed deer (*Odocoileus virginianus*), striped skunk (*Mephitis mephitis*), and bobcat (*Lynx rufus*). The Proposed Action would be located in habitat that could also be utilized by bird species, such as raptors, songbirds, and waterfowl, protected from harm or harassment under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. § 703). Migratory bird species will vary seasonally. Species observed during 2019 surveys include mourning dove (*Zenaidura macroura*), scissor-tailed flycatcher (*Tyrannus forficatus*), Carolina chickadee (*Parus carolinensis*), and house finch (*Haemorrhous mexicanus*). Butterfly species observed include the monarch (*Danaus plexippus*), Gulf fritillary (*Agraulis vanillae*), hackberry emperor (*Asterocampa celtis*), and common buckeye (*Junonia coenia*). A full list of animal species observed during 2019 biological surveys within the project area is included in Appendix D.

Species associated with aquatic or riparian areas and found in the vicinity of Veterans Lake or Nancy's Creek include Blanchard's cricket frog (*Acris blanchardi*), spiny softshell turtle (*Apalone spinifer*), red-eared slider (*Trachemys scripta elegans*), diamondback watersnake (*Nerodia rhombifer*), mallard (*Anas platyrhynchos*), and American wigeon (*Mareca americana*). No fish or aquatic invertebrate surveys occurred in 2019, but fish species likely to occur in Veterans Lake are western mosquitofish (*Gambusia affinis*), bluegill (*Lepomis macrochirus*), long-ear sunfish (*Lepomis megalotis*), largemouth bass (*Micropterus salmoides*), and gizzard shad (*Dorosoma cepedianum*). Carp were observed feeding during 2019 biological surveys (likely European carp [*Cyprinus carpio*]).

3.4.1.3 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§ 1531 et seq.) requires that a discretionary Federal action not put into jeopardy the continued existence of a listed species and not destroy or adversely modify their critical habitat. The Texas Parks and Wildlife Department (TPWD) maintains a list of state and Federal species considered to be threatened with extinction or in danger of becoming extinct, as well as species' critical habitat designations. Table 3-3 shows the Federally and state listed species in Dallas County, Texas, and their potential to inhabit the DFW National Cemetery property (TPWD 2019, USFWS 2020). Table 3-1 includes one species placed on the list of USFWS Birds of Conservation Concern (BCC), the Harris' sparrow (*Zonotrichia querula*) (USFWS 2008). BCCs are included on official species lists provided by USFWS Information for Planning and Consultation (IPaC) pursuant to 50 CFR 402.12.

Table 3-3. Federal and State Listed Threatened and Endangered Species Known to Occur in Dallas County, Texas

Species	Federal Status	State Status	Potential to Inhabit the Project Area
Birds			
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Delisted ¹	Threatened	Yes, but unlikely to nest. Found primarily near rivers and large lakes; nests in tall trees or cliffs near water.
Black-capped vireo (<i>Vireo atricapilla</i>)	Delisted ²	Endangered	No, except for strays. Habitat not present. Prefers rangelands with scattered clumps of shrubs separated by open grassland. Found in Texas only during breeding season.
Golden-cheeked warbler (<i>Setophaga chrysoparia</i>)	Endangered	Endangered	No. Habitat not present. Prefers juniper-oak woodlands. Dependent on mature ashe juniper (<i>Juniperus ashei</i>) for nests.
Harris' sparrow (<i>Zonotrichia querula</i>)	BCC ³	—	Yes, during winter. Historic breeding range is Canada. Overwinters in central plains of U.S. Found in numerous habitats: shrubby areas, open fields, backyards.
Interior least tern (<i>Sterna antillarum athalassos</i>)	Endangered	Endangered	No. Habitat not present. Nests along sand and gravel bars within braided streams and rivers. Also known to nest on man-made structures.
Piping plover (<i>Charadrius melodus</i>)	Threatened	Threatened	No. Habitat not present. Wintering migrant along the Texas Gulf Coast. Prefers beaches and bayside mud or salt flats. Only an incidental observation could potentially occur.
Red knot (<i>Calidris canutus rufa</i>)	Threatened	—	No. Habitat not present. Wintering migrant along the Texas Gulf Coast. Prefers the shoreline of coasts and bays; also uses inland mudflats. Only an incidental observation could potentially occur.
White-faced ibis (<i>Plegadis chihi</i>)	—	Threatened	No. Habitat not present. Prefers freshwater marshes, sloughs, and irrigated rice fields. Nests in marshes, in low trees, on the ground in bulrushes, reeds, or on floating mats.
Whooping crane (<i>Grus Americana</i>)	Endangered	Endangered	Yes, but unlikely. Potential migrant throughout most of the state. Winters in coastal marshes.

Species	Federal Status	State Status	Potential to Inhabit the Project Area
Wood stork (<i>Mycteria americana</i>)	—	Threatened	No. Habitat not present. Forages in prairie ponds, flooded pastures or fields, ditches, and shallow standing water. Roosts in tall snags.
Mollusks			
Louisiana pigtoe (<i>Pleurobema riddellii</i>)	—	Threatened	No. Habitat not present. Found in streams and moderate-size rivers, usually flowing water. Historically found in the Sabine, Neches, and Trinity River basins. No reports from Mountain Creek Lake.
Sandbank pocketbook (<i>Lampsilis satura</i>)	—	Threatened	No. Habitat not present. Small to large rivers with moderate flows and swift current on gravel and sand bottoms.
Texas fawnsfoot (<i>Truncilla macrodon</i>)	Candidate ⁴	—	No. Habitat not present. Perennial streams to large rivers with moderate flows. Historically found in Trinity River Basin.
Texas heelsplitter (<i>Potamilus amphichaenus</i>)	—	Threatened	No. Habitat not present. Quiet waters in mud or sand; also found in reservoirs. Found in the Sabine, Neches, and Trinity River basins. No reports from Mountain Creek Lake.
Reptiles			
Alligator snapping turtle (<i>Macrochelys temminckii</i>)	—	Threatened	Yes, but unlikely. Found in perennial water bodies; deep waters of rivers, canals, lakes, and oxbows. Also found in swamps and bayous near deep running water.
Texas horned lizard (<i>Phrynosoma cornutum</i>)	—	Threatened	No. Habitat not present. Found in open, arid, and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush, or scrubby trees. Soils vary from sandy to rocky.
Timber rattlesnake (<i>Crotalus horridus</i>)	—	Threatened	No. Found in swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland. Prefers dense ground cover.
Western chicken turtle (<i>Deirochelys reticularia</i> ssp. <i>miaria</i>)	Under Review ⁴	—	Yes, but unlikely. Habitat is generally semi-aquatic areas that contain slow-moving and shallow water, including ponds, lakes, streams, and swamps. Minimal records in Dallas County.

Sources: TPWD 2019, USFWS 2020.

¹ Nesting bald eagles and their nest trees are protected by law under the Bald and Golden Eagle Act of 1940 (16 U.S.C. § 668-668c).

² Delisted on April 16, 2018 (50 CFR Part 17).

³ BCC = Birds of Conservation Concern (USFWS 2008).

⁴ Candidate species and Under Review species receive no statutory protection under the ESA.

In addition to Federal and state-listed species, Texas Species of Greatest Conservation Need (SGCN) were considered while planning the expansion and maintenance activities at DFW National Cemetery. SGCN flora and fauna species are tracked by TPWD in order to reduce the likelihood of endangerment and to preclude the need to list these species as threatened or endangered in the future. Based on TPWD coordination, SGCN species known to occur in the vicinity of the project area include eastern box turtle (*Terrapene carolina*), common garter snake

(*Thamnophis sirtalis*), and Warnock's coral root (*Hexalectris warnockii*). Biological surveys conducted in 2019 did not detect any SGCN species present in the proposed project areas.

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

Under the No Action Alternative, there would be minor adverse impacts on vegetation, wildlife, and migratory birds, due to the continued spread of invasive plant species throughout the project area. Without active ecological restoration efforts, the site is likely to transition further away from native plant communities into disturbed successional woodlands containing high densities of waxyleaf privet and other mid-story species. Any remaining patches of little bluestem grassland would eventually disappear. Native wildlife which is adapted to prairie or savannah communities would be put at greater risk of extirpation. Further, dredging of Veterans Lake would not occur, thus increasing the risk of the lake completely filling with sediment. Any aquatic species, including all fish species, would be forced downstream towards Mountain Creek Lake. If continued loss of riparian or wetland characteristics occurred in the blocked Nancy's Creek channel, both plant and animal species adapted to riparian or wetland communities would be lost. No impacts to threatened or endangered species would be expected to occur, as no threatened or endangered species are known to occur in the project area.

3.5.2.2 Alternative 1: Implement Expansion and Repairs/Improvements (Preferred Alternative)

Vegetation

Minor adverse impacts to vegetation would occur due to implementation of the Proposed Action. A total of 41.8 acres of land would be disturbed by construction of expansion areas and maintenance to Veterans Lake and the wetland mitigation area. Of this area, approximately 35.6 acres are currently occupied by natural vegetation communities (i.e., non-maintained), 1.1 acres are maintained as lawn, and 4.1 acres are occupied by Veterans Lake. Approximately 0.8 acre of natural vegetation would be temporarily disturbed for maintenance activities in the wetland mitigation area. The other 34.8 acres of natural vegetation would be permanently disturbed by the Proposed Action. The original proposed location of lake dredge spoils included a remnant little bluestem grassland area (prairie/savanna). This spoils area was relocated to a site that had been previously disturbed and is occupied by degraded habitat. Spoils areas would be allowed to partially re-vegetate over time, but the vegetation community composition is likely to change due to the deposition of new sediment in the spoils areas as well as continued disturbances from retrieval of this soil for other future cemetery grounds maintenance activities. Adverse impacts from the loss of 34.8 acres of natural vegetation would be considered minor due to the already degraded state of the vegetation communities on-site and the lack of any rare or sensitive natural communities. Current vegetation communities would have to be actively restored and managed to prevent further degradation from the structure and species composition of the Texas Blackland prairies and woodland groves historically found in the region. No plant species of special conservation concern have been located within the bounds of the cemetery.

Wildlife

Loss of common individual wildlife specimens during vegetation removal and grading of the cortege lane, columbarium, committal service shelter, and 27-acre burial expansion project areas is likely to occur. Though large, mobile species like white-tailed deer and fox squirrel will be able to relocate to adjacent natural areas, some smaller species will be susceptible to take from construction activities. Example species include the rough earth snake (*Haldea striatula*), which was observed during 2019 biological surveys, and Blanchard's cricket frog. The

displacement or death of wildlife would minimally reduce the population size of certain species within the cemetery but would have a negligible adverse effect on the overall population viability of these species in the vicinity. Furthermore, likely minor beneficial effects to wildlife would occur from the dredging of Veterans Lake and proposed wetland mitigation maintenance activities. Restoration of deepwater habitat in the lake would benefit aquatic species already occupying the area as well as wildlife that may migrate upstream from Mountain Creek Lake. Maintenance to the Nancy's Creek wetland mitigation area would prevent further sedimentation and degradation of the riparian channel that supports wildlife such as Blanchard's cricket frog and western mosquitofish.

To avoid adverse effects on migratory birds from the Proposed Action, natural areas would be surveyed for nesting birds prior to site preparation activities. If active nests are encountered, the nests would be protected until the young have fledged. To further protect vegetation and wildlife, a biological monitor should inspect all natural areas for sensitive resources prior to construction activities.

Threatened and Endangered Species

Implementation of the Proposed Action or other alternatives would have no effect on Federally listed threatened and endangered species. A bald eagle, which has been delisted, was observed flying over the project area, but it is not likely to nest on cemetery grounds. Its preferred habitat in the vicinity is likely Mountain Creek Lake and its shorelines. Whooping crane and western chicken turtle (status: Under Review) could be found in the project area but it is unlikely. Whooping crane would not nest or permanently inhabit the project area and would only be observed as a flyover or stopover during migration. Western chicken turtle have not been reported from Mountain Creek Lake or any associated tributaries.

A temporary, negligible adverse impact would occur to Harris' sparrows, which were observed foraging along the southern edge of Veterans Lake in 2019, due to dredging and maintenance activities within the Veterans Lake wetland mitigation area. Implementation of the Proposed Action would force Harris's sparrows out of the project area temporarily, though no take would be anticipated. Continued upkeep and restoration of the Nancy's Creek wetland mitigation area would provide long-term beneficial impacts to Harris's sparrow through the preservation of overwintering habitat that it appears to prefer.

There is a possibility that project activities could affect a state listed species such as the alligator snapping turtle or a SGCN species such as Warnock's coral root. Surveys conducted in 2019 did not detect any of these species present on-site, but habitat is present that could support these species. The cemetery has been designed to include permanent natural habitat throughout the property, and although implementation of this expansion would remove portions of this habitat, wildlife corridors would be maintained in perpetuity. Sites for deposition of spoils from construction activities have been selected in areas that have been previously disturbed and would have the least chance of supporting sensitive species. Riparian corridors would not be disturbed by expansion construction activities and remnant patches of prairie and oak-juniper woodland would persist along the southern edge of the property. Furthermore, if a state-listed species such as the alligator snapping turtle is using Veterans Lake as habitat, dredging of the lake is a necessary action to prevent complete sedimentation and loss of the lake as a viable long-term habitat. Coordination with TPWD determined that acquisition of an Aquatic Resource Relocation Plan (ARRP) permit would not be necessary prior to implementation of proposed dredging and maintenance activities in Veterans Lake and the Nancy's Creek wetland mitigation area.

3.6 Socioeconomics

3.6.1 Affected Environment

This section provides a brief overview of the socioeconomic environment in the area around DFW National Cemetery that is relevant to the proposed activities. The Region of Interest (ROI) for a socioeconomic assessment is the Dallas-Fort Worth-Arlington Metropolitan Statistical Area (MSA). When data are not available for the Dallas-Fort Worth-Arlington MSA, data are provided for Dallas County, Texas. DFW National Cemetery would be expected to draw veterans from at least the Dallas-Fort Worth-Arlington MSA, which includes 14 counties (Collin, Dallas, Delta, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Somervell, Tarrant, and Wise). The U.S. Census estimates show that in 2018, there were 355,058 veterans living in the Dallas-Fort Worth-Arlington MSA. In addition to these veterans, eligible dependents would be buried at the cemetery.

The estimated population in the Dallas-Fort Worth-Arlington MSA in 2018 was 7,540,371 (U.S. Census Bureau 2020). The Dallas-Fort Worth-Arlington MSA has a higher Hispanic population (29 percent of total population) as compared to the U.S. as a whole (18 percent), but less than the entire state of Texas (40 percent) (U.S. Census Bureau 2020). Notably, the Dallas-Fort Worth-Arlington MSA had the largest increase in population of any MSA in the nation from 2016 to 2017 (146,238 people). Additional demographic data, provided in Table 3-4, provide an overview of the socioeconomic environment in the ROI.

Table 3-4. Population Demographics, Dallas-Fort Worth-Arlington MSA

Geographic Area	Population			Race/Ethnicity		
	2018 Population Estimate	Average Annual Growth Rate 2010-2018 (Percent)	2010 Density (Persons per Square Mile)	White, Not Hispanic (Percent)	Hispanic (Percent)	Minority (Percent)
Dallas-Fort Worth-Arlington MSA	7,540,371	n/a	812.6	45.6	29.0	54.4
Texas	7,171,646	14.1	96.3	41.5	39.6	48.5
United States	327,167,434	6.0	87.4	60.4	18.3	39.6

Source: U.S. Census Bureau 2020, Census Reporter 2020

Data on the level of educational attainment (Table 3-5) show that the population of the Dallas-Fort Worth-Arlington MSA has attained approximately the same level of education as Texas and the U.S., with the percentage of the population that has earned high school and college credentials similar in average to Texas and the U.S.

Table 3-5. Educational Attainment

Geographic Area	High School Graduate or Higher 2014-2018 (Percent over age 25)	Bachelor's Degree or Higher 2014-2018 (Percent over age 25)
Dallas-Fort Worth-Arlington MSA	86.1	35.5
Texas	83.2	29.3
United States	87.7	31.5

Source: U.S. Census Bureau 2020, Census Reporter 2020

Impacts on socioeconomic conditions would be considered significant if they included displacement or relocation of residences or commercial buildings or increases in long-term demands for public services in excess of existing and projected capacities.

3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

Under the No Action Alternative, after the remaining burial sites are utilized, there would be no additional burial sites available in the Dallas-Fort Worth MSA for veterans and their eligible dependents. With the nearest national cemetery approximately 150 miles away, veterans and their families would be required to travel substantial distances for burial services, resulting in minor to moderate adverse impacts on veterans and their families. No changes to land use or potential displacement of resources would occur from the No Action Alternative.

3.6.2.2 Alternative 1: Implement Expansion and Repairs/Improvements (Preferred Alternative)

Implementation of the Proposed Action would not result in any displacement or relocation of residences or commercial buildings. All project activities would occur within the bounds of a property originally acquired for the purpose of developing the DFW National Cemetery.

Under the Preferred Alternative, there would be temporary, minor, beneficial impacts associated with the planned construction and repairs. Temporary, minor, beneficial impacts in the form of jobs and income for area residents, revenues to local businesses, and sales taxes to the State of Texas and local municipalities could be realized if construction materials are purchased locally or local construction workers are hired for land preparation and construction. No additional permanent employees would be hired, so no permanent beneficial or adverse socioeconomic impacts would be expected.

4.0 CUMULATIVE IMPACTS

This section of the EA defines cumulative impacts, identifies past, present, and reasonably foreseeable projects relevant to cumulative impacts, and analyzes the potential cumulative impacts associated with the implementation of the Proposed Action and other projects/programs planned within the ROI. For cumulative impacts analysis, the ROI is generally comprised of Dallas County, but varies depending on the resource being assessed (e.g., Texas Blackland Prairie, Northern Part ecoregion for Biological Resources).

4.1 Definition of Cumulative Impacts

The CEQ defines cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, or local) or individuals. CEQ guidance on cumulative effects requires the definition of the scope of the other actions and their interrelationship with the Proposed Action (CEQ 1997). The scope must consider geographic and temporal overlaps with the Proposed Action and all other actions occurring within the ROI. Informed decision making is served by consideration of cumulative impacts resulting from activities that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future activities affecting any part of the human or natural environment impacted by the Proposed Action. Activities were identified for this analysis by reviewing pertinent USACE or other Federal documents, news/press releases, and published media reports, and through consultation with planning and engineering departments of local governments and state and Federal agencies.

4.2 Past Impacts Within The Region of Influence

Within the DFW National Cemetery boundary, 167.5 acres have already been developed within the 583.5-acre property. These developments consist of the original cemetery construction and two expansions. Prior to these permanent constructions, the land occupied by the cemetery was used for cattle grazing.

The land within Dallas County as a whole has been heavily impacted by historical and ongoing anthropogenic activities. Lands were historically farmed and/or grazed in the region. More recently, residential, commercial, and industrial development has dominated the landscape as the Dallas-Fort Worth-Arlington metropolitan area continues to rapidly expand. All of these actions have, to a greater or lesser extent, contributed to several ongoing threats to the ecosystem, including loss and degradation of habitat for both common and rare wildlife and plants, pollution of waterways, and potential disturbance of cultural sites (i.e., archaeological resources). Although activities that occurred on Federal lands have more recently been regulated by NEPA, the most substantial impacts of activities within the ROI such as historic livestock grazing and commercial, industrial, and residential development were not or are not regulated by NEPA and did not include efforts to minimize impacts.

4.3 Current and Reasonably Foreseeable Projects Within and Near the Region of Influence

Reasonably foreseeable projects within the bounds of the DFW National Cemetery include all future planned expansions and maintenance projects, which will be similar in extent to the current proposed project. Based upon estimated expansions occurring every 5 to 10 years at the cemetery and a planned 100 percent burial capacity being reached in 2060, another 4 to 8 burial expansions (i.e., construction events) will occur on cemetery grounds. Each expansion will have similar environmental effects as the current proposed expansion. Currently, a major expansion to the cemetery is in the planning stage and is being addressed as a separate project from the Proposed Action described and assessed in this EA. Each development phase has been distinguished based on the timing of implementation, funding sources, priority of need, and cohesiveness of the project components. Each phase can be fully implemented independent of the other. The environmental effects from the major expansion will be considered separate and cumulative to the effects of the Proposed Action.

Two other major Federally-led projects that are currently occurring in Dallas County are the Dallas Floodway Project (DFP) and Dallas Floodway Extension Project (DFEP) (USACE 2020). Both projects are intended to provide flood protection in the Dallas area along the Trinity River corridor. Construction is currently occurring on segments of the DFEP while a Project Partnership Agreement was signed last year by the City of Dallas and USACE, Fort Worth District, for the primary DFP (City of Dallas 2019).

A summary of the anticipated cumulative impacts relative to the Proposed Action is presented below. The discussion is presented for each of the resources described previously.

4.4 Analysis of Cumulative Impacts

Cumulative impacts were analyzed using the definition and past, current, and foreseeable projects provided above. Cumulative impacts can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis the intensity of impacts will be classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 3.0. A summary of the anticipated cumulative impacts on each resource in the ROI is presented below.

4.4.1 Cultural Resources

The Proposed Action would not affect cultural resources or historic properties. Therefore, this action, when combined with other existing and proposed projects in the region, would not result in major cumulative impacts on cultural resources or historic properties.

4.4.2 Soils

A major cumulative impact on soils would occur if the action exacerbates or promotes long-term erosion, if the project soils are inappropriate for the proposed construction and would create a risk to life or property, or if there would be a substantial reduction in agricultural production or loss of prime farmland soils.

Modification of soils would not occur under the No Action Alternative. The Proposed Action and other foreseeable future actions within the bounds of the DFW National Cemetery would not reduce prime farmland soils, but will be projected to remove 583.5 acres of land from potential agricultural production. Agricultural production is no longer a dominant land use in Dallas County as a whole, where development has occurred on a widespread scale. It is probable that

the property would be used for an alternative residential, commercial, or industrial development rather than agricultural production if it was not devoted for use as a national cemetery. The permanent impact on 35.6 acres of soils from the Proposed Action, when combined with past, current, and foreseeable future actions in the ROI, would not be considered to have a major cumulative adverse impact on soils.

4.1.1 Air Quality

The air quality of DFW National Cemetery, by nature of its location within the Dallas-Fort Worth metropolitan area, is affected by a number of various activities. However, the Proposed Action would have very local and minimal impacts on air quality. The air quality analysis conducted for this EA considers ambient air quality conditions (i.e., conditions relative to the impact of all activities in the airshed) and has determined that the impacts of the project would be temporary and minor. Furthermore, BMPs will be put into place including suitable demarcation of the project's boundaries to restrict traffic to the project area and reduce soil disturbance, soil watering to minimize airborne particulate matter created during construction activities, and seeding of bare ground upon completion of cemetery expansion and habitat improvements. Additionally, all construction equipment and vehicles will be kept in good operating condition to minimize exhaust emissions. Thus, the Proposed Action would have a less than significant negligible adverse cumulative effect on air quality.

4.1.3 Water Resources

4.1.3.1 Groundwater

The Proposed Action would have negligible adverse effects on groundwater resources. Therefore, this action, when combined with other existing and proposed projects in the region, would not result in major cumulative impacts on groundwater.

4.1.3.2 Surface Water

A major adverse cumulative impact on surface water resources would occur if an action substantially depletes surface water supplies, substantially alters drainage patterns, violates CWA or state water quality regulations, or results in the loss of waters of the U.S. that cannot be compensated. The Proposed Action would have temporary, negligible adverse effects on surface water resources. Therefore, this action, when combined with other existing and proposed projects in the region, has no potential to result in major adverse cumulative impacts on surface water. Further, the preservation of the Nancy's Creek wetland mitigation area, which would benefit from maintenance activities within the Proposed Action, provides a permanent wetland within Dallas County that may serve as a refugia for certain migratory birds or aquatic species in an area that is predominantly developed. With proper planning and communication, this wetland could be linked to other wetland mitigation projects required for development projects in the region to provide a more diverse and sustainable ecological community in and around Mountain Creek Lake. Thus, minor beneficial cumulative impacts to surface water quality could occur from a system of wetland mitigations around Mountain Creek Lake that aid in the filtration and breakdown of toxins and pollutants in the water column.

4.1.3.3 Floodplains

With the proper use of construction BMPs, the Proposed Action would have negligible adverse effects on floodplain resources. No portion of the project area proposed for construction activities is within the 100-year floodplain (excluding a portion of Veterans Lake proposed for beneficial dredging, which is in a 100-year floodplain). Therefore, this action, when combined with past, current, and foreseeable future actions in the region, would not result in major cumulative impacts on floodplains.

4.1.4 Biological Resources

4.1.4.1 Vegetative Habitat

A major adverse cumulative impact on vegetation would occur if a substantial reduction in ecological processes, communities, or populations would threaten the long-term viability of a species or result in the substantial loss of a sensitive community that could not be offset or otherwise compensated. Under the No Action Alternative, no direct impacts to vegetation would occur as no construction activities would occur. If Veterans Lake was not dredged and continued to fill with sediment, the lake would eventually fill in completely, a stream channel would re-establish, and a disturbed vegetation community would colonize the area. This would result in negligible impacts to vegetation in the project area. Under the Proposed Action, approximately 34.8 acres of vegetation would be removed from the project area as a result of burial expansion, resulting in minor adverse impacts to vegetation resources. Negligible impacts to vegetation would occur from dredging Veterans Lake. When considered with other past, current, and foreseeable future actions, the Proposed Action would result in minor to major adverse cumulative impacts to vegetation in the ROI.

The project area resides in the Texas Blackland Prairie, Northern Part MLRA, which was historically occupied by tall- to mid-grass prairies. It is estimated that within the Texas Blackland Prairies ecoregion, only 5,000 acres of remnant prairie remain in a region that historically encompassed 12 million acres (TPWD 2012). This is less than one-tenth of a percent of the original area that still exists today. The portions of undeveloped areas in DFW National Cemetery that contain dominant species such as little bluestem indicate that the area was historically some form of prairie, savannah, or open woodland. Though only minor adverse impacts to vegetation would occur from implementation of the Proposed Action, when combined with past actions in the ROI, the impacts have been significant. No mitigation is required for impacts to an ecoregion, including the Texas Blackland Prairies, so preservation of this vegetation resource requires direct Federal or state funding for restoration and conservation projects. Further information regarding the conservation of the Texas Blackland Prairies can be obtained from TPWD (TPWD 2012).

4.1.4.2 Wildlife Resources

A major adverse cumulative impact on wildlife resources would occur if a substantial reduction in ecological processes, communities, or populations would threaten the long-term viability of a species or result in the substantial loss of a sensitive community that could not be offset or otherwise compensated. Under the No Action Alternative, no direct impacts to wildlife would occur as no construction activities would occur. If Veterans Lake was not dredged and continued to fill with sediment, aquatic wildlife would eventually be forced downstream. Under the Proposed Action, approximately 34.8 acres of wildlife habitat (i.e., vegetated or natural areas) would be removed from the project area. Negligible impacts to wildlife would occur in the form of displacement or take of individuals of less mobile species. When considered along with past, current, and foreseeable future actions, the Proposed Action would result in negligible adverse cumulative impacts to wildlife resources in the ROI. If all proposed expansions to the cemetery are implemented, approximately 369 acres of a total 583.5 acres that compose the property would be developed. The remaining 214.5 acres would be kept undeveloped and serve as wildlife corridors in the immediate vicinity of the cemetery. Wildlife that lives in or around the cemetery is already composed of species that are adapted to life near development or in disturbed areas. The remaining undeveloped areas within the cemetery will provide future habitat that is not available in properties that are fully developed for commercial, residential, or industrial purposes.

Further, dredging of Veterans Lake and maintenance to the Nancy's Creek wetland mitigation area would provide minor beneficial impacts for aquatic, lacustrine, and riparian wildlife species. When considered with the DFP/DFEP project, which will simultaneously preserve riparian habitat along the Trinity River while providing flood protection to areas of Dallas, minor beneficial cumulative impacts to wildlife within the Upper Trinity watershed will occur.

4.1.4.3 *Threatened and Endangered Species*

A major cumulative impact on protected species would occur if a combination of past, present, and foreseeable future actions resulted in a jeopardy opinion for any endangered, threatened, or special status species. Under the No Action Alternative, there would be no direct or indirect impacts on threatened or endangered species or their habitats as no construction or maintenance activities would occur. No Federally or state listed threatened or endangered species were observed during biological surveys of the project area. No suitable habitat for these species is present within the project area. Under the Proposed Action, a temporary, negligible adverse impact would occur to Harris' sparrow, which is on the USFWS BCC list. This species is known to occur around developed areas and even when the cemetery is fully developed after future expansion activities, it will still contain suitable habitat for the species. Further development in Dallas County may reduce some potential habitat for Harris' sparrow, but suitable habitat will continue to be available around residential and commercial areas even with development. The primary reason for this species being listed as a species of concern is potential effects from climate change in its northern Canada breeding range. Therefore, this action, when combined with past, current, and foreseeable future actions in the region, would not result in major cumulative impacts on threatened or endangered species.

4.1.5 Socioeconomics

The Proposed Action would have negligible temporary, beneficial impacts on socioeconomic resources. Therefore, this action does not have the potential to contribute significantly to adverse cumulative socioeconomic impacts. When combined with other past, current, and foreseeable future projects in the ROI, the Proposed Action would not result in adverse cumulative impacts on socioeconomics. Minor beneficial cumulative impacts are likely to occur in Dallas County from the current and projected high growth rate in the region, which will bring increased jobs and resources to the region. The Proposed Action would temporarily contribute to this increase in jobs and resources in Dallas County.

5.0 PUBLIC INVOLVEMENT

The VA invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision-making process.

Public participation opportunities with respect to the EA, as well as decision making on the Proposed Action, are guided by 38 CFR Part 26. Coordination letters were sent to various stakeholders including, but not limited to, the following:

- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- Texas Department of Transportation
- Texas Commission on Environmental Quality
- Texas Parks and Wildlife Department
- Texas Historical Commission
- Dallas Baptist University
- Potters House
- Native American Tribes

The draft EA will be released to the public for review beginning 18 June 2020, which is the date the Notice of Availability (NOA) will be published in the *Dallas Morning News* and *Fort Worth Star Telegram*. A copy of the EA and draft Finding of No Significant Impact (FONSI) will be available on USACE, Fort Worth District's website at the following address: <https://ecso.swf.usace.army.mil/pages/Publicreview.cfm>. The public comment period will be open for 14 calendar days starting on the date the NOA is published.

See Appendix A for a distribution list, copies of coordination letters, agency correspondence, a list of agencies and groups from which comments were received, proof of publication for the NOA, and copies of the correspondence received during the public review period.

5.1 Potential for Generating Substantial Controversy

Controversy from implementation of the Proposed Action is not expected. The proposed gravesite expansion and improvement activities would be carried out within the existing boundaries of DFW National Cemetery where there is ample room for the expansion. Additional property would not be acquired. The Dallas-Fort Worth veteran community would continue to be served for the next 5 to 10 years. No critical environmental resources would be lost from implementation of the Proposed Action.

There could be controversy if the Proposed Action is not undertaken. The VA anticipates that there is only enough room to provide interment services for the next 3 to 5 years. Once the cemetery is filled, veterans and their families would be required to travel substantial distances to other VA cemeteries if they wish to utilize a VA national cemetery. In addition, sedimentation and loss of Veterans Lake would likely create complaints from the Dallas-Fort Worth veteran community who are accustomed to the high aesthetic quality that the cemetery maintains. Loss of the current wetland mitigation area as an approved mitigation area due to negligence would create the need for a costly alternate plan to be developed in order to be in compliance with the

CWA. A formal violation of the CWA and funding needed to regain compliance would come at the expense of taxpayers and budgeting for other important projects, and likely raise objections.

6.0 BEST MANAGEMENT PRACTICES

This chapter describes those measures that would be implemented to reduce or eliminate potential adverse impacts on the human and natural environments. Many of these measures have been incorporated as standard operating procedures on past projects within DFW National Cemetery. BMPs are presented by resource category, and development of specific BMPs may be required for certain activities. The proposed BMPS would be coordinated through the appropriate agencies and responsible parties, as required.

General

- Prior to the start of construction activities and for all new site workers, training will be provided for all project personnel on the proper implementation of construction BMPs associated with the project. This training will provide construction personnel with a clear understanding of the sensitive natural and cultural resources with potential to be found on-site.
- The project construction area perimeters will be clearly demarcated, and no disturbance outside the construction area perimeter will be authorized without prior coordination and approval from USACE, Fort Worth District and the VA.
- Spoils deposited in spoils areas will be spread and compacted to a minimum of 85 percent compaction of the original spoils deposition height. Spoils will only be used within upland areas within the cemetery boundary and will never be deposited in or near potential jurisdictional wetlands, Waters of the U.S., or other potential water resources or drainage areas. If spoils are not used within 14 days after deposition, areas containing spoils depositions will be re-vegetated using a native seed mixture. This seed mixture will not contain any non-native species such as Bermuda grass (*Cynodon dactylon*). At a minimum, a seed mix of three native grass species such as little bluestem, switchgrass, and Indian grass will be used for re-vegetation.

Cultural Resources

- If archaeological features or human remains are inadvertently discovered, all work would be halted in that area, the State Historic Preservation Officer would be contacted, and appropriate measures would be implemented to mitigate any adverse impacts.

Soils

- Appropriate TPDES permitting would be obtained by the contractor, prior to construction activities, and BMPs, including but not limited to silt fences, waddles, wetting compounds, and re-vegetation of disturbed areas with native grasses, would be carried out to reduce fugitive dust and erosion from disturbed sites and soil stockpile areas.
- Care will be taken to avoid impacting the project area with hazardous substances (e.g., antifreeze, fuels, oils, lubricants) used during construction activities. Any spill of a reportable quantity will be contained immediately within an earthen dike, and the application of an absorbent (e.g., granular, pillow, sock) will be used to absorb and contain the spill. Any reportable spill of a hazardous or regulated substance will be reported immediately to on-site environmental personnel who will notify appropriate Federal and state agencies.

Water Resources

- A SWPPP will be prepared and implemented prior to commencement of construction activities. The SWPPP will consider areas with highly erodible soils when planning construction activities and incorporate measures such as silt fence, waddles, aggregate materials, and wetting compounds in the erosion-control BMPs. Erosion control will consist of hydromulching or no-till drilling if feasible. If erosion control blankets or mats are used, the material will not contain plastic netting that would pose an entanglement hazard for wildlife. The SWPPP will be prepared in accordance with requirements of the TPDES CGP.
- All TPDES CGP BMPs will be adhered to during dredging activities in Veterans Lake.
- Silt fencing or similar erosion prevention materials should be placed along the southern end of the Lake Dredge/Construction Spoils Area to prevent erosion and washout of deposited materials into the O'Guinn Creek 100-year floodplain. Similar erosion control or washout prevention should be placed along the eastern end of the Columbaria Spoils Area, which is adjacent to Nancy's Creek. Erosion control should also be placed between the eastern edge of the 27-acre burial expansion area and the section of Nancy's Creek which is in proximity to the burial expansion area.
- BMPs required for TCEQ Section 401 water quality certification (if necessary) when applying for a Section 404 Nationwide Permit 27 include (TCEQ 2017):
 - Erosion control (at least one of the following): temporary vegetation, mulch, interceptor swale, erosion control compost, compost/mulch filter socks, blankets/matting, sod, diversion dike
 - Sedimentation control (at least one of the following): sand bag berm, silt fence, triangular filter dike, stone outlet sediment traps, erosion control compost, compost/mulch filter socks, rock berm, hay bale dike, brush berms, sediment basins

Biological Resources

- Environmental awareness training will be given to all construction personnel prior to the initiation of construction activities. This training will include notifying construction personnel of Federally listed, state listed, and SGCN species with the potential to occur in the project area.
- To avoid adverse effects on migratory birds, preference would be given to clearing of trees and shrubs outside of the nesting season (March 15 to September 15). If vegetation clearing has to occur during the nesting season, the areas to be cleared would be surveyed for nesting birds prior to clearance activities. If active nests are encountered, the nests would be protected by maintaining a 150-foot buffer of vegetation around the nests until eggs have hatched and the young have fledged. The biological monitor would also conduct additional pre-construction surveys for Federally listed, state listed, and SGCN species. State-listed species discovered on-site would be relocated by a biologist permitted or approved by the TPWD Wildlife Permits Office.
- In the unlikely event a bald eagle or whooping crane are observed in the project site during the burial expansion construction activities, all work would cease until the individual(s) leave the area on their own volition. The VA would also contact the USFWS Ecological Services Office to inform them of the sighting.
- If trenches are dug during construction activities and left open for more than two hours, trenches will be inspected for wildlife prior to backfilling. If trenches are left open overnight, then escape ramps (e.g., wooden planks) will be placed at a terminus of the trench to aid wildlife in escape.

- Prior to commencement of construction activities and dredging of Veterans Lake and the Nancy's Creek wetland mitigation area, an Aquatic Invasive Species (AIS) Transfer Prevention Plan will be developed. This plan will describe BMPs to be adhered to by construction personnel to prevent the spread of aquatic invasive plants and animals on construction equipment and materials. The AIS Transfer Prevention Plan will use guidance from two primary source documents: 1) The TPWD *Guidelines for Aquatic Resource Relocation Plans for Fish and Shellfish, Including Freshwater Mussels* (https://tpwd.texas.gov/publications/pwdpubs/media/pwd_lf_t3200_1958_arrp_guidelines_packet.pdf); and 2) *TPWD Clean/Drain/Dry Procedures and Zebra Mussel Decontamination Procedures for Contractors Working in Inland Public Waters* (https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/habitat_assessment/media/WHAB_ZebraMussel_CleanDrainDryDecontaminationProcedures_Final_02052015.pdf). This plan will be particularly important during proposed dredging activities and the following BMPs (or similar) should be included in the plan:
 - If a barge-mounted dredge/excavator or any other equipment makes contact with Veterans Lake or Nancy's Creek, this equipment will be drained of all water (including motor, bilge, and other receptacles). Cleaning, draining, and drying of equipment should occur both in preparation for and after completion of proposed dredging activities at DFW National Cemetery. Construction personnel should receive training on the proper implementation of the clean/drain/dry procedure for limiting spread of invasive aquatic species.
 - Any plant material discovered on equipment should be removed and disposed of in trash receptacles prior to, during, and after completion of proposed dredging activities. Do not throw plant material into Veterans Lake, Nancy's Creek, or the vicinity of these waterbodies.

Air Quality

- If possible, construction equipment should be staged at the construction site for the length of construction activities (or during active construction) to reduce emissions from the transport of machinery.
- Unpaved roads (i.e., the designated construction access road) and staging areas should be watered during construction activities to minimize fugitive dust emissions from construction traffic.

7.0 CONCLUSIONS

There would be minor impacts on the natural and human environments from the implementation of the Proposed Action. The Proposed Action would result in beneficial impacts on the human environment by allowing DFW National Cemetery to continue to serve the Dallas-Fort Worth veteran community for many more years.

Potential environmental impacts of the Preferred Alternative and the No Action Alternative would be those primarily associated with the ground and vegetation disturbance required to construct the burial expansion area, cortege lane, committal service shelter, and columbarium, as well as sediment and waterbody disturbances during dredging of Veterans Lake and the Nancy's Creek wetland mitigation area. There is no proposed expansion of DFW National Cemetery outside its present boundaries and no permanent increase in staff as a result of the proposed construction. Table 7-1 presents a summary of the impacts expected to occur under each alternative.

Table 7-1. Summary of Impacts Analyzed

Resource	No Action Alternative	Alternative 1: Preferred Alternative
Cultural Resources	No adverse effects on cultural resources would occur.	No adverse effects on cultural resources would occur. Archaeological surveys found no archaeological deposits eligible for inclusion on the NRHP.
Soils	No adverse effects on soils would occur.	Minor adverse impacts on soils would occur. Approximately 34.8 acres of soil would be permanently disturbed, including 6.0 acres of prime farmland soil. BMPs would be utilized to control erosion. A TPDES CGP would be obtained prior to implementation.
Air Quality	No adverse effects on air quality would occur	Minor temporary adverse impacts to air quality would occur during construction activities. The amount of air pollutants released from construction would be below <i>de minimis</i> threshold levels and not considered significant to long-term air quality in Dallas County.
Groundwater	No adverse effects on groundwater would occur.	Negligible adverse effects would occur. BMPs would be utilized to prevent surface water runoff during construction activities. A TPDES CGP would be obtained.
Surface Water	Major adverse impacts would occur due to sedimentation of Veterans Lake and the Nancy's Creek wetland mitigation area. Continued sediment deposition would violate the Section 404 permit and wetland mitigation plan for Veterans Lake.	No adverse impacts would occur to surface waters from the Proposed Action. Beneficial effects would occur from sediment removal from Veterans Lake and the Nancy's Creek wetland mitigation area.
Floodplains	No adverse effects on floodplains would occur.	Negligible adverse impacts would occur from development within a small portion of the Nancy's Creek 500-year floodplain as well as improvements to Veterans Lake. Appropriate BMPs would be used to prevent effects to the O'Guinn Creek 100-year floodplain.

Resource	No Action Alternative	Alternative 1: Preferred Alternative
Vegetation	Minor adverse effects on vegetation would occur due to the continued spread of invasive species populations.	Minor adverse impacts on vegetation would occur due to the permanent loss of 34.8 acres of disturbed natural vegetation.
Wildlife	Minor adverse effects on wildlife would occur due to the continued spread of invasive plant species, which lower habitat quality for many native animals.	Negligible adverse impacts on wildlife would occur. Appropriate mitigation to avoid adverse effects on migratory birds would be undertaken.
Threatened and Endangered Species	No adverse effects on threatened and endangered species would occur.	No adverse effects on threatened and endangered species would occur.
Socioeconomics	There would be minor to moderate adverse effects as interment services to veterans and their families would be eliminated within 3 to 5 years as the cemetery would reach its available capacity. This would result in veterans and their families having to travel long distances if they wish to be serviced by a VA cemetery.	No adverse effects would occur. Services to veterans and their families would continue. Slight beneficial effects would occur during construction and maintenance activities as local expenditures on fuel, equipment rental, and food would likely occur. No displacement of residences or commercial buildings would occur.
Potential for Generating Substantial Controversy	There would be a potential for controversy. The VA anticipates that there is only enough room to provide interment services for the next 3 to 5 years. Once filled, veterans and their families would be required to travel substantial distances to other VA cemeteries.	No potential for controversy is expected. The proposed expansion and maintenance activities would be carried out within the existing boundaries of DFW National Cemetery where there is ample room for the expansion. Additional property would not be acquired. The Dallas-Fort Worth veteran community would continue to be served for the next 10 years. Maintenance in the Veterans Lake and Nancy's Creek wetland mitigation area would comply with Federal mitigation law.

8.0 LIST OF PREPARERS

The following people were primarily responsible for the preparation of this EA (Table 8-1).

Table 8-1. Personnel Involved in Development of EA

Name	Agency / Organization	Discipline / Expertise	Experience	Role in Preparing EA
Erica Boulanger	USACE, Fort Worth District	Environmental Planning	14 years of NEPA and Environmental Studies	USACE Environmental Project Manager
Chris Ingram	Gulf South Research Corporation	Biology/Ecology	41 years of EA/EIS studies	Project Manager and EA preparation
Ross Hackbarth	Gulf South Research Corporation	NEPA/Natural Resource Management	6 years of Natural Resources and NEPA studies	EA preparation and analysis
Christy Guempel	Gulf South Research Corporation	GIS/Graphics	12 years of GIS/graphics experience	GIS analysis and graphics
John Lindemuth	Gulf South Research Corporation	Archaeology	25 years of Archaeology Surveys and Management	PI for cultural resources surveys
Eve Carter	Gulf South Research Corporation	Archaeology	4 years of Archaeology Survey experience	Cultural resources
Josh McEnany	Gulf South Research Corporation	NEPA/Natural Resource Management	23 years of Natural Resources and NEPA studies	Wetlands, Section 401/404 permitting

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10.0 LIST OF ACRONYMS AND ABBREVIATIONS

BCC	Birds of Conservation Concern
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CWA	Clean Water Act
DFEP	Dallas Floodway Extension Project
DFP	Dallas Floodway Project
DFW	Dallas-Fort Worth
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FY	Fiscal Year
GSRC	Gulf South Research Corporation
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
MSA	Metropolitan Statistical Area
NCA	National Cemetery Administration
NCS	National Cemetery System
NEPA	National Environmental Policy Act
NOA	Notice of Availability
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PCBs	Polychlorinated Biphenyls
PL	Public Law
SPCCP	Spill Prevention, Control, and Countermeasure Plan
SWPPP	Stormwater Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
TPDES	Texas Pollution Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
U.S.	United States
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USDA NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VA	United States Department of Veterans Affairs

APPENDIX A
AGENCY COORDINATION



DEPARTMENT OF VETERANS AFFAIRS

National Cemetery Administration
Office of Design and Construction (43B)
425 I Street, NW, 5E.425QQ
Washington DC, 20001

January 17, 2020

Rebecca Shelton
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711-2276

Subject: Request for Concurrence on the *Negative Findings Cultural Resources Survey of 0.8 Linear Mile for Access/Haul Road Improvements and 38 Acres for the Proposed Dallas-Fort Worth Minor Cemetery Expansion and Development Project, 916CM3017, Dallas County, Texas*

Dear Ms. Shelton:

U.S. Department of Veterans Affairs (VA) is planning a minor cemetery expansion and development project. The proposed undertaking would take place within the current boundary of the U.S. Department of Veterans Affairs (VA) National Cemetery in Dallas County, Texas. The proposed undertaking would include a new Columbarium, a new Committal Service Shelter, a new Cortege Lane, a Burial Expansion Area, disposal sites for sediment removed from Veterans Lake, and an associated staging area (Projects 916-CM3-017, 916-CM3-013, 916-CM3-014, and 916-CM3-015). U.S. Army Corps of Engineers (USACE), Fort Worth District, on behalf of the VA, contracted Gulf South Research Corporation (GSRC) to conduct an intensive archaeological pedestrian survey supplemented with the excavation of shovel test pits (STPs) of the 0.8-mile linear Area of Potential Effect (APE) and the 38-acre block APE. This investigation constitutes the VA's good faith effort to take into account any adverse effects that may occur as a result of the proposed undertaking in compliance with Section 106 of the National Historic Protection Act (NHPA) (Public Law 89-665; 54 U.S.C. 300101 et seq). Please find attached the technical report titled *Negative Findings Cultural Resources Survey of 0.8 Linear Mile for Access/Haul Road Improvements and 38 Acres for the Proposed Dallas-Fort Worth Minor Cemetery Expansion and Development Project, Dallas County, Texas*, which outlines the results of those investigations.

During field survey, the pedestrian survey encountered no archaeological sites on the ground surface across the survey areas. The subsurface testing, which consisted of the excavation of 55 STPs across the survey areas, also recorded no cultural material or archaeological sites. Four isolated occurrences (IOs) were recorded during the pedestrian survey of the Burial Expansion Area. One of the IOs, IO-1, consisted of a displaced, partially buried modern concrete slab with no associated artifacts. The remaining three IOs, IO-2 to IO-4, consisted of modern trash piles of predominantly concrete fragments, milled wood, plastic, synthetic siding, and vehicle tires. No definitively historic material was noted in association with any of the trash piles and it was determined in the field that the material represents relatively recent disposal of modern material in the project area. None of the IOs meet the minimum requirements of an archaeological site

and are modern in nature. No additional archaeological work is recommended for any of the IOs and none of the IOs are considered eligible for the National Register of Historic Places (NRHP).

A previously recorded archaeological site, 41DL364, is plotted outside but in proximity to the Committal Service Shelter survey area. No evidence of the previously recorded archaeological site was found to extend within the Committal Service Shelter survey area. In addition, the area of the plotted site location, outside of the Committal Service Shelter survey area, was also examined to determine if the site was still present. No evidence of any of the extant features or cultural material was noted at the site location. Either site 41DL364 was incorrectly plotted or the site has been completely destroyed.

Based on the results of the current investigation, the VA has determined that no previously or newly recorded cultural resources would be affected by the proposed project. As a result, no further work is recommended, and the VA has determined that No Historic Properties would be affected by the proposed undertaking. Supporting evidence for these determinations can be found in the enclosed draft cultural resources technical report. The VA respectfully requests concurrence on its determinations at this time.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen E. Davis". The signature is fluid and cursive, with a long horizontal line extending from the end.

Stephen E. Davis, RLA
Project Manager
Department of Veteran Affairs
National Cemetery Administration

Enclosures: Draft Report: *Negative Findings Cultural Resources Survey of 0.8 Linear Mile for Access/Haul Road Improvements and 38 Acres for the Proposed Dallas-Fort Worth Minor Cemetery Expansion and Development Project, 916CM3017, Dallas County, Texas*



Re: Project Review under Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas

THC Tracking #202005629

DFW National Cemetery Minor Expansion and Development

2000 Mountain Creek Pkwy, Dallas

Dallas, TX 75211

Dear John Lindemuth:

Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff led by Rebecca Shelton, Caitlin Brashear and Christopher Meyers has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- Property/properties are eligible for listing or already listed in the National Register of Historic Places.
- No historic properties are present or affected by the project as proposed. However, if historic properties are discovered or unanticipated effects on historic properties are found, work should cease in the immediate area; work can continue where no historic properties are present. Please contact the THC's History Programs Division at 512-463-5853 to consult on further actions that may be necessary to protect historic properties.

Archeology Comments

- No historic properties present or affected. However, if buried cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.
- THC/SHPO concurs with information provided.
- Draft report acceptable. Please submit another copy as a final report along with shapefiles showing the area where the archeological work was conducted. Shapefiles should be submitted electronically to Archeological_projects@thc.texas.gov.

We look forward to further consultation with your office and hope to maintain a partnership that

will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: rebecca.shelton@thc.texas.gov, caitlin.brashear@thc.texas.gov, christopher.meyers@thc.texas.gov

This response has been sent through the electronic THC review and compliance system(eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit <http://thc.texas.gov/etrac-system>.

Sincerely,

A handwritten signature in black ink, appearing to read "Rebecca Shelton". The signature is fluid and cursive, with the first name "Rebecca" being more prominent than the last name "Shelton".

For Mark Wolfe, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.

cc: james.e.barrera@usace.army.mil



DEPARTMENT OF VETERANS AFFAIRS

National Cemetery Administration
Office of Design and Construction
(438) 425 1 Street, NW, 5E.425QQ
Washington DC, 20001

March 26, 2020

Ms. Debra Bills
Field Supervisor
U.S. Fish and Wildlife Service
Arlington Ecological Services Field Office
2005 Northeast Green Oaks Boulevard, Suite 140
Arlington, Texas 76006

Subject: *Environmental Assessment for the Proposed Dallas-Fort Worth Minor Cemetery Expansion Project, Project No. 916-CM3-013, 916-CM3-014, 916-CM3-015, 916-CM3-017, Dallas County, Texas*

Dear Ms. Bills:

The Department of Veterans Affairs (VA) proposes to expand its capacity for burial sites and columbaria niches to meet the growing demand at the Dallas-Fort Worth (DFW) National Cemetery and ensure no break in service to the veteran community. The U.S. Army Corps of Engineers (USACE), Fort Worth District, is developing a draft Environmental Assessment (EA) on behalf of the VA for the proposed minor expansion and improvements of interment sites at DFW National Cemetery in Dallas County, Texas (Figure 1). All proposed activities would be contained within the DFW National Cemetery boundary. A new site would be developed for a 9,000-niche columbarium. Additionally, a new burial expansion site to include new roadways, 8,000 pre-placed crypts, and 6,000 in-ground cremain burial plots would be constructed. Other improvements would include the proposed construction and maintenance of a fourth committal service shelter and a fourth cortege lane. Furthermore, dredging of Veterans Lake and an adjacent wetland mitigation area would occur to remove sediments and restore intended water flow patterns. The environmental impact analysis process for this draft EA is being conducted by USACE and VA in accordance with Council on Environmental Quality regulations pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969.

Surveys for biological resources, cultural resources, and wetlands have already occurred within the proposed project area. No threatened or endangered species are known to occur within the project area. No cultural resources were found in the project area. USACE respectfully requests that your agency provide input regarding any unique or environmentally sensitive areas or resources that may be affected by the Proposed Action. In addition, USACE welcomes any information that your agency believes would be helpful in ensuring the overall success of this effort. We intend to provide your agency with a copy of the Draft EA once the document is completed. Please inform us if additional copies are needed or if someone else within your agency other than you should receive the Draft EA. If you require additional information or have any questions, please contact Ms. Erica Boulanger, Unit Chief, NEPA/Cultural Resources Section, (817) 886-1002 or via e-mail at Erica.b.boulanger@usace.army.mil.

Sincerely,

Stephen E. Davis, RLA
Project Manager
Department of Veteran Affairs
National Cemetery Administration

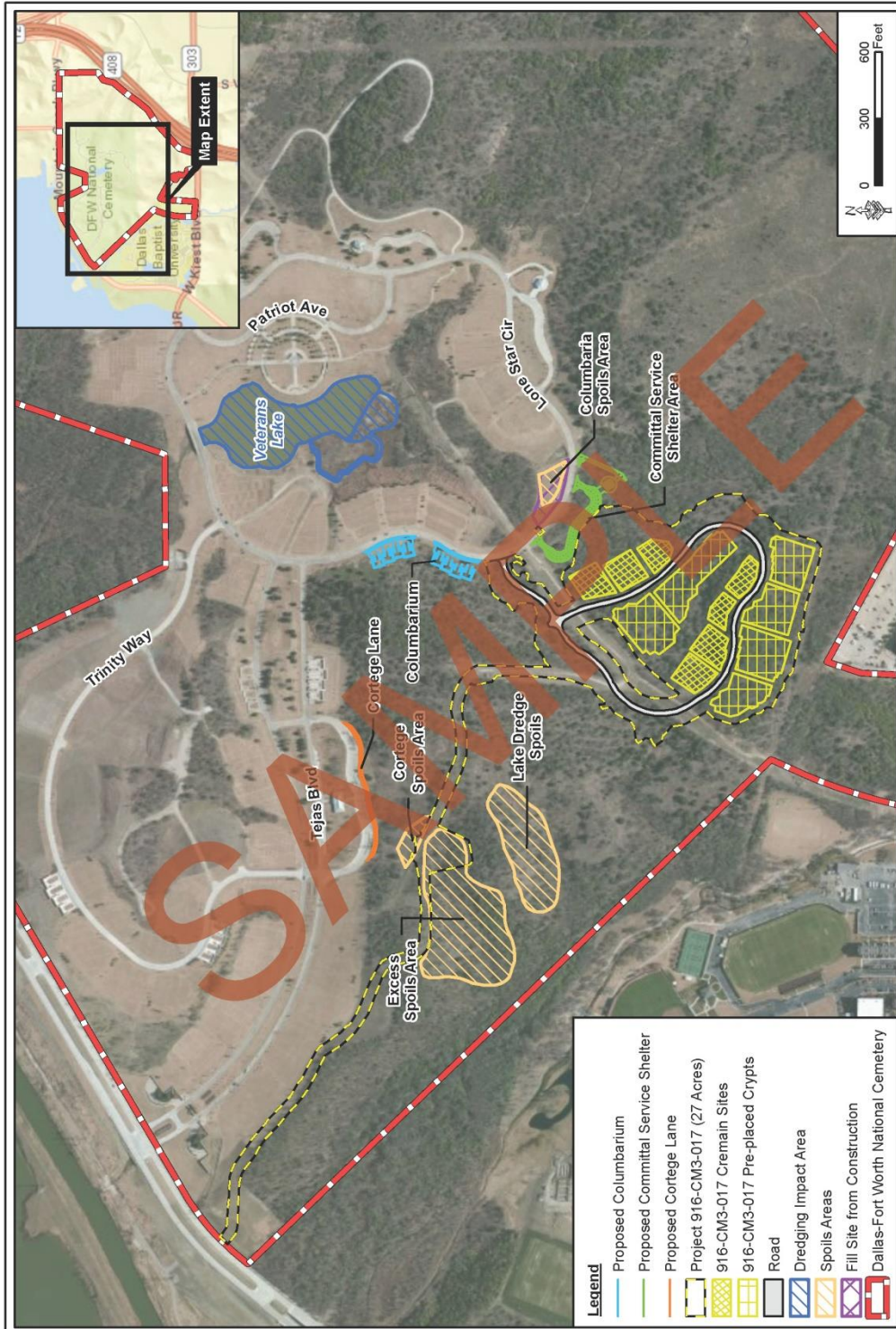


Figure 1. Project Site Locations within Dallas-Fort Worth National Cemetery
Proposed Improvements to the Dallas-Fort Worth National Cemetery



DEPARTMENT OF VETERANS AFFAIRS

National Cemetery Administration
Office of Design and Construction
(438) 425 I Street, NW, 5E.425QQ
Washington DC, 20001

April xx, 2020

Ms. Debra Bills
Field Supervisor
U.S. Fish and Wildlife Service
Arlington Ecological Services Field Office
2005 Northeast Green Oaks Boulevard, Suite 140
Arlington, Texas 76006

Subject: *Environmental Assessment for the Proposed Dallas-Fort Worth Minor Cemetery Expansion Project, Project No. 916-CM3-013, 916-CM3-014, 916-CM3-015, 916-CM3-017, Dallas County, Texas*

Dear Ms. Bills:

The Department of Veterans Affairs (VA) proposes to expand its capacity for burial sites and columbaria niches to meet the growing demand at the Dallas-Fort Worth (DFW) National Cemetery and ensure no break in service to the veteran community. The U.S. Army Corps of Engineers (USACE), Fort Worth District, has developed a draft Environmental Assessment (EA) on behalf of the VA for the proposed minor expansion and improvements of interment sites at DFW National Cemetery in Dallas County, Texas. All proposed activities would be contained within the DFW National Cemetery boundary. A new site would be developed for a 9,000-niche columbarium. Additionally, a new burial expansion site to include new roadways, 8,000 pre-placed crypts, and 6,000 in-ground cremain burial plots would be constructed. Other improvements would include the proposed construction and maintenance of a fourth committal service shelter and a fourth cortege lane. Furthermore, dredging of Veterans Lake and an adjacent wetland mitigation area would occur to remove sediments and restore intended water flow patterns. The environmental impact analysis process for this draft EA has been conducted by USACE and VA in accordance with Council on Environmental Quality regulations pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969.

In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation in the continuing NEPA process by providing any comments you have on the draft EA, or identifying any potential environmental impacts that are of concern to you. Please provide any written comments you have prior to or on May xx, 2020, which is 14 days from the date of the publication of the notice of availability of this EA.

Please address any written comments to Ms. Erica Boulanger, Unit Chief, NEPA/Cultural Resources Section, USACE, Fort Worth District, 819 Taylor Street, Room 3B10, Fort Worth, Texas, 76102 or via e-mail to Erica.b.boulanger@usace.army.mil.

Sincerely,

Stephen E. Davis, RLA
Project Manager
Department of Veteran Affairs
National Cemetery Administration

**APPENDIX A – CONTACT LIST FOR COORDINATION AND TRANSMITTAL
EA FOR DALLAS-FORT WORTH NATIONAL CEMETERY MINOR EXPANSION AND IMPROVEMENTS**

Interested Agencies and Federally Recognized Tribes – Contact List

Name	Title	Agency	Address	City/State/Zip
Ms. Debra Bills	Field Supervisor	U.S. Fish and Wildlife Service Arlington Ecological Services Field Office	2005 Northeast Green Oaks Boulevard, Suite 140	Arlington, TX 76006
Ms. Rhonda Smith	Chief	EPA, Region VI Planning and Coordination Section, Mail Code 6RA	1445 Ross Avenue, Suite 1200	Dallas, TX 75202-2733
Mr. Mark Wolfe	Executive Director	Texas Historical Commission (SHPO)	P.O. Box 12276	Austin, TX 78711
Mr. Clayton Wolf	Director of Wildlife	Texas Parks and Wildlife Department	4200 Smith School Road	Austin, TX 78744
Ms. Alyssa Taylor	Regional Director	Texas Commission on Environmental Quality Region 4	2309 Gravel Drive	Fort Worth, TX 76118- 6951
Mr. Mohamed Bur, P.E.	District Engineer	Texas Department of Transportation, Dallas District	4777 E. Highway 80	Mesquite, TX, 75150-6643
Dr. Adam Wright	President	Dallas Baptist University	3000 Mountain Creek Parkway	Dallas, TX 75211
Ms. Alberta Blair, P.E.	Director	Dallas County Public Works	Administration Building, 411 Elm Street, 4th Floor	Dallas, TX 75202
Bishop T. D. Jakes	Bishop	The Potter's House	6777 West Kiest Boulevard	Dallas, TX 75211
Chairman Bobby Komardley	Chairman	Apache Tribe of Oklahoma	P.O. Box 1330	Andarko, OK 73005
Chairman William Nelson Sr.	Chairman	Comanche Nation	P.O. Box 908	Lawton, OK 73502
Chairman David Sickey	Chairman	Coushatta Tribe of Louisiana	P.O. Box 818	Elton, LA 70532
President Russell Martin	President	Tonkawa Tribe of Indians of Oklahoma	1 Rush Buffalo Road	Tonkawa, OK 74653-4449
President Terri Parton	President	Wichita and Affiliated Tribes	P.O. Box 729	Anadarko, OK 73005

Ross Hackbarth

From: Boulanger, Erica B CIV USARMY CESWF (USA) <Erica.B.Boulanger@usace.army.mil>
Sent: Wednesday, April 15, 2020 12:02 PM
To: Ross Hackbarth
Cc: Blond, Chevron D CIV USARMY CESWF (USA)
Subject: FW: EA for Proposed Cemetery Expansion Project
Attachments: Scanned from a Xerox Multifunction Printer.pdf

Categories: Red Category

-----Original Message-----

From: Christine Polito [<mailto:Christine.Polito@txdot.gov>]
Sent: Wednesday, April 15, 2020 10:50 AM
To: Boulanger, Erica B CIV USARMY CESWF (USA) <Erica.B.Boulanger@usace.army.mil>
Cc: Dan Perge <Dan.Perge@txdot.gov>
Subject: [Non-DoD Source] EA for Proposed Cemetery Expansion Project

Ms. Boulanger,

TxDOT received the attached letter regarding the Environmental Assessment for the Proposed Dallas-Fort Worth Minor Cemetery Expansion Project, Project No. 916-CM3-013, 916-CM3-014, 916-CM3-015, 916-CM3-017, Dallas County, Texas.

According to the information provided, all proposed activities would be contained within the DFW National Cemetery boundary, and TxDOT facilities would not be impacted. There are no unique or environmentally sensitive areas within the TxDOT right-of-way adjacent to the proposed cemetery project, and we are unaware of any such resources that may be present outside of TxDOT right-of-way.

Please let me know if you need anything else.

Thank you,

Christine Polito

Environmental Program Manager

Dallas Environmental

Texas Department of Transportation

4777 E. Highway 80

Mesquite, TX 75150-6643

(214) 320-6141

Christine.Polito@txdot.gov <<mailto:Christine.Polito@txdot.gov>>

<Blocked<https://www.txdot.gov/inside-txdot/media-center/featured.html>>



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T. Dan Friedkin
Chairman-Emeritus
Houston

Carter P. Smith
Executive Director

April 27, 2020

Mr. Stephen E. Davis
Project Manager
Department of Veterans Affairs
National Cemetery Administration
(438) 425 I Street, NW, 5E, 425QQ
Washington D.C. 20001

RE: Scoping for Dallas-Fort Worth National Cemetery Minor Expansion Project

Dear Mr. Stephen E. Davis:

The Texas Parks and Wildlife Department (TPWD) has received and reviewed the March 26, 2020, scoping request regarding the above-referenced project.

Project Description

The U.S. Army Corps of Engineers (USACE) Fort Worth District, on behalf of the Department of Veterans Affairs (VA), is developing a draft environmental assessment (EA) for the proposed minor expansion and improvements at the Dallas-Fort Worth (DFW) National Cemetery in Dallas County, Texas, in fulfillment of National Environmental Policy Act (NEPA) requirements. The VA intends to develop new sites including a 9,000-niche columbarium, 8,000 pre-placed crypts, 6,000 in-ground cremain burial plots, new roadways, a fourth committal service shelter, and a fourth cortege lane. The project also includes dredging Veteran's Lake and an adjacent wetland mitigation area to remove sediments and restore intended water flow patterns.

TPWD Coordination

Electronic submittal: TPWD Wildlife Habitat Assessment Program prefers that project review requests and documents be submitted electronically to WHAB@tpwd.texas.gov. When submitting projects electronically, please include geographic location files when available (e.g. GIS shapefile or kmz). For more information on submitting a project for review, please visit the TPWD Wildlife Habitat Assessment Program website.

Program Leader: Please provide the draft EA to the attention of Ms. Laura Zebehazy, Wildlife Habitat Assessment Program Leader, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744.

Previous Coordination. The VA provided a scoping request August 27, 2019 for the Phase IV Expansion of the DFW National Cemetery. TPWD recommends the USACE and VA combine the two projects into a single and complete EA.

Mr. Stephen E. Davis

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As the state agency with primary responsibility for protecting the state's fish and wildlife resources, in accordance with the authority granted by Parks and Wildlife Code §12.0011 and per coordination under the NEPA, TPWD hereby provides the following comments and recommendations to minimize potential adverse impacts to the state's fish and wildlife resources, including rare, threatened and endangered species, in the construction and maintenance of the proposed project.

Federal Regulations

Federal Regulations: Migratory Bird Treaty Act (MBTA)

The MBTA prohibits direct and affirmative purposeful actions that reduce migratory birds, their eggs, or their nests, by killing or capturing, to human control, except when specifically authorized by the Department of the Interior. This protection applies to most native bird species, including ground nesting species. The U.S. Fish and Wildlife Service (USFWS) Migratory Bird Office can be contacted at (505) 248-7882 for more information on potential impacts to migratory birds.

Within the project area, potential impacts to migratory birds may occur during site preparation and grading activities through the disturbance of existing vegetation and bare ground that may harbor active bird nests, including nests that may occur in grass, shrubs, trees, gravel roads, and bare ground.

Recommendation: TPWD recommends excluding vegetation clearing activities during the general bird nesting season, March 15 through September 15, to avoid adverse impacts to breeding birds. If clearing vegetation during the nesting season is unavoidable, TPWD recommends surveying the area proposed for disturbance to ensure that no nests with eggs or young will be disturbed by operations. If nests are observed during surveys, TPWD recommends retaining a 150-foot buffer of vegetation around active nests until eggs have hatched and the young have fledged.

The project area is located within the Central Flyway, a major bird migration corridor that leads to the Texas coast and Central and South America. Sky glow as a result of light pollution can have negative impacts on wildlife and ecosystems by disrupting natural day and night cycles inherent in managing behaviors such as migration, reproduction, nourishment, sleep, and protection from predators.

An internet search of nighttime photographs of the DFW National Cemetery indicates that the entrance sign is lighted with upward-facing lights.

Recommendation: As bird protection measures, TPWD recommends retrofitting existing lighting, such as at the entrance sign, and using the minimum amount of permanent night-time lighting needed for safety and security. TPWD recommends minimizing the cumulative adverse effects of sky glow by focusing light downward, with full cutoff luminaires to avoid light emitting above the horizontal and to use dark-sky friendly lighting that is on only when needed, down-shielded, as bright as needed, and minimizes blue light emissions. Appropriate lighting

Mr. Stephen E. Davis
Page 3
April 27, 2020

technologies and best management practices can be found at the International Dark-Sky Association website.

Federal Regulations: Clean Water Act (CWA)

Section 404 of the Clean Water Act establishes a federal program to regulate the discharge of dredge and fill material into the waters of the U.S., including wetlands. The USACE and the Environmental Protection Agency (EPA) are responsible for regulating water resources under this act. Although isolated wetlands may not be applicable to the USACE permitting process, both isolated and jurisdictional wetlands are essential in providing habitat for wildlife and helping to protect water quality.

The project materials do not identify impacts to Waters of the U.S. (WOUS) subject to Section 404 permitting. The project indicates that Veteran's Lake and mitigation wetlands would be dredged. Typically, wetland mitigation sites do not require dredging unless there has been significant siltation to prevent the wetland from functioning.

Recommendation: TPWD recommends the EA identify the existing wetland mitigation area, the project for which the existing mitigation area was created, and the permanent mitigation requirements of the existing mitigation area.

Recommendation: TPWD recommends providing details in the EA regarding Section 404 impacts and mitigation. If dredging of the lake and wetland area are necessary, TPWD recommends the EA provide the plans for dredging, regrading, and planting. The wetland mitigation area should be replaced to provide for a functioning wetland; otherwise, TPWD recommends off-site compensatory mitigation to replace both the loss in wetland habitat and the loss of an existing mitigation site. TPWD recommends compensatory mitigation for additional impacts to jurisdictional streams and wetlands associated with the project.

Streams, wetlands, lakes, and their shoreline and riparian buffer areas generally provide habitat and travel corridors for wildlife, and TPWD recommends protecting them to the maximum extent possible. Aerial imagery and online photographs of Veteran's Lake indicate that approximately three quarters of the lake is bordered by manicured lawn and one quarter is bordered by natural wetland and riparian vegetation. The lawn portion is mowed to the water's edge. The monoculture lawn lacks species diversity, indicating that maintenance includes the use of herbicides which have a potential for entering the lake and downstream waters during rainfall events. The lake was built on a jurisdictional stream that could benefit from improved water quality.

Recommendation: If lake dredging is required, TPWD recommends grading the lake to create shorelines that transition from shallow to deep water. This configuration will allow for the establishment of emergent vegetation. TPWD recommends retaining a non-mow buffer along lake with establishment of native tree, shrub, forbs, and grass species to provide wildlife habitat, improve water quality, and enhance lake aesthetics.

Recommendation: TPWD recommends incorporating natural buffers contiguous to wetlands or aquatic systems to remain undisturbed during project planning, construction, and maintenance to preserve wildlife cover, food sources, and travel corridors. TPWD recommends avoiding disturbance to inert microhabitats in waterways such as snags, brush piles, fallen logs, creek banks, pools, and gravel stream bottoms, as these provide habitat for a variety of fish and wildlife species and their food sources. Erosion control measures should be installed prior to construction and maintained until disturbed areas are permanently revegetated using site specific native vegetation.

State Regulations

State Regulations – Chapter 64, Birds

TPW Code Section 64.002, regarding protection of nongame birds, provides that no person may catch, kill, injure, pursue, or possess a bird that is not a game bird. TPW Code Section 64.003, regarding destroying nests or eggs, provides that, no person may destroy or take the nests, eggs, or young and any wild game bird, wild bird, or wild fowl. TPW Code Chapter 64 does not allow for incidental take and therefore is more restrictive than the MBTA.

Recommendation: Please review the *Migratory Bird Treaty Act* section above for recommendations as they are also applicable for compliance with TPW Code.

State Regulations: State-listed Threatened and Endangered Species

TPW Code regulates state-listed threatened and endangered animal species. The capture, trap, take, or killing of state-listed threatened and endangered animal species is unlawful unless expressly authorized under a permit issued by USFWS or TPWD. The TPWD online application identifying rare, threatened, and endangered species by county (RTEST) provides information regarding state-listed species that have potential to occur within each county in Texas. Please note that RTEST has undergone a significant update to reflect changes to the state-listed threatened and endangered species lists, effective March 30, 2020, as published in the Texas Register notice (45 TexReg 2188). Additionally, RTEST includes an update of the species of greatest conservation need (SGCN) that may occur in each county in Texas to more closely align with the SGCN identified in the Texas Conservation Action Plan.

TPWD also maintains records of known occurrences for these species within the Texas Natural Diversity Database (TXNDD), and these data are publicly available by request. Although a review of the TXNDD indicates no known occurrences of state-listed species within the project area, state-listed species could potentially be impacted if suitable habitat is present at or near the project site.

Recommendation: TPWD recommends the EA identify the state-listed threatened and endangered species with potential to occur within the project area using the RTEST list for Dallas County. TPWD recommends conducting site surveys of the

project disturbance areas to identify suitable habitat for state-listed species, to assess potential impacts to state-listed species, and to adjust the disturbance footprint to avoid or minimize adverse impacts to sensitive resources including state-listed species and SGCN, which are discussed more fully in the *State Fish and Wildlife* Resources section below. TPWD recommends the EA identify impact avoidance and minimization measures that the VA will employ to protect state-listed species and other sensitive resources.

The TPWD Texas Ecosystem Analytical Mapper (TEAM) indicates the project area primarily consists of native invasive deciduous woodlands and shrublands that are invading native grassland habitats. Small areas of oak-hardwood slope forest adjacent to a wooded riparian stream corridor is shown within two of the spoil sites. The dredge site consists of open water and riparian habitats.

Terrestrial State-listed Species: Of the terrestrial species listed as potentially occurring in Dallas County, the state-threatened black-capped vireo (*Vireo atricapilla*) and Texas horned lizard (*Phrynosoma cornutum*) are more at risk for being impacted by construction activities than other state-listed terrestrial species due to potential habitat occurring within the project area and limited mobility. Where suitable habitat is present, vegetation disturbance during nesting could impact nesting black-capped vireos. The Texas horned lizard would be susceptible to earth moving equipment and compaction. Additionally, various small vertebrates including snakes, lizards, toads, and mice fall into trenches, become trapped, and are susceptible to loss from backfilling activities, starvation, dehydration, predation, and exposure to elements.

Recommendation: TPWD recommends the VA and contracted construction personnel be informed of the federal and state listed threatened and endangered species and SGCN with potential to occur in the project area and to take precautions avoid impacts to rare species if encountered in the project area. Wildlife observed during construction should be allowed to safely leave the site.

Recommendation: If the project is found to contain unavoidable habitat of a state-listed species, then TPWD recommends a biological monitor be present during clearing and construction activities to assist in detecting state-listed species. State-listed threatened species observed during construction that will not readily leave the project site may be translocated by a permitted individual to a nearby area with similar habitat that would not be disturbed during construction. TPWD recommends that any translocations of reptiles be the minimum distance possible no greater than one mile, preferably within 100-200 yards from the initial encounter location. For purposes of relocation, surveys, monitoring, and research, terrestrial state-listed species may only be handled by persons authorized through the TPWD Wildlife Permits Office.

Recommendation: Where trenching for utilities is involved, TPWD recommends minimizing the length of trenches left open at any given time during construction. Trenches left open for more than two daylight hours should be inspected for the presence of trapped wildlife prior to backfilling. If trenches cannot be backfilled

the day of initial trenching, then escape ramps, in the form of short lateral trenches or wooden planks sloping to the surface at an angle of less than 45 degrees, should be installed at least every 90 meters.

Recommendation: For soil stabilization and revegetation of disturbed areas within the proposed project area, TPWD recommends erosion and seed/mulch stabilization materials that avoid entanglement hazards to snakes and other wildlife species. Because the mesh found in many erosion control blankets or mats pose an entanglement hazard to wildlife, TPWD recommends the use of no-till drilling, hydromulching and/or hydroseeding rather than erosion control blankets or mats due to a reduced risk to wildlife. If erosion control blankets or mats will be used, the product should contain no netting or contain loosely woven, natural fiber netting in which the mesh design allows the threads to move, therefore allowing expansion of the mesh openings. Plastic mesh matting should be avoided.

Aquatic State-listed Species: Veteran's Lake may provide suitable habitat for the state-listed threatened alligator snapping turtle (*Macrochelys temminckii*) and Texas heelsplitter (*Potamilus amphichaenus*).

Recommendation: TPWD recommends construction methodologies and best management practices to avoid or minimize adverse impacts to aquatic resources, such as avoiding disturbance to aquatic habitats including streams, lakes, and their associated wetland and riparian vegetation, ensuring protection of native mussels and alligator snapping turtles from disturbance, using mats to protect ground vegetation and roots from disturbance by construction equipment, and employing appropriate sediment controls.

Recommendation: TPWD recommends coordinating with the TPWD Kills and Spills Team (KAST) when working in public waters to obtain appropriate authorization and to ensure protection of aquatic wildlife, see *Aquatic Resources* section below for more information.

State Regulations - Aquatic Resources

TPW Code Section 1.011 grants TPWD authority to regulate and conserve aquatic animal life of public waters. Title 31, Chapter 57, Subchapter B, Section 57.157 of Texas Administrative Code (TAC) regulates take of native mussels, including common species as well as state-listed threatened species.

TPW Code Sections 12.015, 12.019, 66.015 and TAC 52.101-52.105, 52.202, and 57.251-57.259 regulate the introduction and stocking of fish, shellfish, and aquatic plants into public waters of the state. Dewatering activities can impact aquatic resources through stranding fish and mussels. Other harmful construction activities can trample, dredge or fill areas exhibiting stationary aquatic resources such as plants and mussels. Relocating aquatic life to an area of suitable habitat outside the project footprint avoids or reduces impacts to aquatic life. Relocation activities are done under the authority of a TPWD *Permit to Introduce Fish, Shellfish or Aquatic Plants into*

Public Waters to ensure that natural resource risks associated with relocation area alleviated. Aquatic Resource Relocation Plans (ARRPs) dictate resource handling activities, assist in the permitting process, and are coordinated through the TPWD Kills and Spills Team (KAST). If dewatering activities and other project-related activities cause mortality to fish and wildlife species, then the responsible party would be subject to investigation by the TPWD KAST and will be liable for the value of the lost resources under the authority of TPW Code Sections 12.0011 (b) (1) and 12.301.

Dredging projects that would occur within inland public waters, including lakes or ponds that are connected to streams, would be subject to TPWD authority and should be coordinated with TPWD KAST for appropriate authorization in the relocation of aquatic resources and to ensure protection of native aquatic wildlife. Impact avoidance measures for aquatic organisms, including **all** native freshwater mussel and fish species, regardless of state-listing status, should be considered during project planning and construction activities.

Recommendation: If construction occurs during times when water is present in streams (or their connected waters) and dewatering activities or other harmful construction activities are involved (such as dredging, channelization, armoring, or placement of temporary or permanent fills or structures), then TPWD recommends relocating potentially-impacted native aquatic resources in conjunction with a *Permit to Introduce Fish, Shellfish or Aquatic Plants into Public Waters* and an ARRP. The ARRP should be completed and approved by the department **30 days prior to activity within project waters and/or resource relocation** and submitted with an application for a no-cost *Permit to Introduce Fish, Shellfish, or Aquatic Plants into Public Waters*. ARRPs can be submitted to Bregan Brown, TPWD Region 2 KAST at Kirian.Brown@tpwd.texas.gov and 903-566-2518.

State Regulations – Aquatic Invasive Species

Per TAC Title 31, Part 2, Chapter 57, Subchapter A, it is an offense for any person to possess, transport, or release into the water of this state any species, hybrid of a species, subspecies, eggs, seeds, or any part of any species defined as a harmful or potentially harmful exotic fish, shellfish, or aquatic plant. This rule applies not only to zebra mussels (*Dreissena polymorpha*) (live or dead) and their larvae but also to any species (or fragments thereof) designated as harmful or potentially harmful under this subchapter (e.g., giant salvinia, hydrilla, Eurasian watermilfoil). The full list can be found on the TPWD website regarding prohibited aquatic species.

The proposed project will require equipment to come in contact with inland water bodies. Unwashed equipment entering the site could contain contaminated mud, debris or standing water in crevices and are a risk of transporting aquatic invasive species to the site, especially if the equipment is coming from a previous job that involved work in other water bodies. Additionally, equipment leaving the construction site at the end of the job could contain contaminated material that is either known to be present or unknowingly present at the project site.

Mr. Stephen E. Davis
Page 8
April 27, 2020

Recommendation: When working in inland waters, TPWD recommends the VA follow an aquatic invasive species (AIS) transfer prevention plan which outlines best management practices (BMPs) for preventing inadvertent transfer of aquatic invasive plants and animals on project equipment. To minimize the risk of transporting aquatic invasive plant or animal species on construction equipment and materials, TPWD recommends NTA and its contractors review and adhere to the AIS BMPs identified in the *TPWD Guidelines for Aquatic Resource Relocation Plans* and the *TPWD Clean/Drain/Dry Procedures and Zebra Mussel Decontamination Procedures for Contractors Working in Inland Public Waters*.

State Regulations – Marl, Sand, Gravel, Shell or Mudshell Permit

A permit under TPW Code, Chapter 86 may be required for disturbance of marl, sand, gravel, shell or mudshell within streams of the state, including disturbance to original channels of streams, even where those channels have been inundated by lakes. Information regarding such permits can be found on the TPWD website.

Recommendation: For proposed dredging activities, TPWD recommends coordinating with Tom Heger, TPWD – Inland Fisheries at Tom.Heger@tpwd.texas.gov to determine if a permit is needed and for permit application forms and additional information.

State Fish and Wildlife Resources

The Texas Conservation Action Plan (TCAP) contains handbooks for each ecoregion of the state for use by all entities for guidance regarding SGCN and priority habitats. In addition to federal and state listed threatened and endangered species, TPWD tracks SGCN and natural plant communities and actively promotes their conservation. TPWD considers it important to evaluate and, if feasible, minimize impacts to SGCN and their habitats to reduce the likelihood of endangerment and preclude the need to list as threatened or endangered in the future. SGCN are included in the above-referenced RTEST application.

After reviewing RTEST for Dallas County and based on potentially suitable habitat in the project area, SGCN flora and fauna with potential to occur in the project area and with greater potential to be impacted by project activities include the following:

Taxon	SName	CName	GRank	SRank
Amphibians	Desmognathus conanti	southern dusky salamander	G5	S1
Amphibians	Anaxyrus woodhousii*	Woodhouse's toad	G5	SU
Amphibians	Pseudacris streckeri	Strecker's chorus frog	G5	S3
Birds	Athene cunicularia hypugaea	western burrowing owl	G4T4	S2
Mammals	Blarina carolinensis	southern short-tailed shrew	G5	S4
Mammals	Myotis austroriparius	southeastern myotis bat	G4	S3
Mammals	Myotis velifer	cave myotis bat	G4G5	S4

Mammals	<i>Perimyotis subflavus</i>	tricolored bat	G2G3	S3S4
Mammals	<i>Eptesicus fuscus</i>	big brown bat	G5	S5
Mammals	<i>Lasiurus borealis</i>	eastern red bat	G3G4	S4
Mammals	<i>Lasiurus cinereus</i>	hoary bat	G3G4	S4
Mammals	<i>Tadarida brasiliensis</i>	Mexican free-tailed bat	G5	S5
Mammals	<i>Sylvilagus aquaticus</i>	swamp rabbit	G5	S5
Mammals	<i>Ictidomys tridecemlineatus</i>	thirteen-lined ground squirrel	G5	S5
Mammals	<i>Microtus pinetorum</i>	woodland vole	G5	S3
Mammals	<i>Mustela frenata</i>	long-tailed weasel	G5	S5
Mammals	<i>Neovison vison</i>	mink	G5	S4
Mammals	<i>Spilogale putorius</i> *	eastern spotted skunk	G4	S1S3
Mammals	<i>Spilogale putorius interrupta</i>	plains spotted skunk	G4T4	S1S3
Mammals	<i>Conepatus leuconotus</i>	western hog-nosed skunk	G4	S4
Reptiles	<i>Terrapene Carolina</i> *	eastern box turtle	G5	S3
Reptiles	<i>Terrapene ornata</i>	western box turtle	G5	S3
Reptiles	<i>Ophisaurus attenuatus</i>	slender glass lizard	G5	S3
Reptiles	<i>Thamnophis sirtalis</i> *	common garter snake	G5	S2
Reptiles	<i>Thamnophis sirtalis annectens</i> *	Texas garter snake	G5T4	S1
Reptiles	<i>Crotalus horridus</i>	timber (canebrake) rattlesnake	G4	S4
Reptiles	<i>Sistrurus tergeminus</i>	massasauga	G3G4	S3S4
Insects	<i>Bombus pensylvanicus</i> *	American bumblebee	G3G4	SNR
Insects	<i>Pogonomyrmex comanche</i>	Comanche harvester ant	G2G3	S2
Insects	<i>Arethaea ambulator</i>	No accepted common name	GNR	SNR
Plants	<i>Matelea edwardsensis</i> *	plateau milkvine	G3	S3
Plants	<i>Liatris glandulosa</i> *	glandular gay-feather	G3	S3
Plants	<i>Physaria engelmannii</i> *	Engelmann's bladderpod	G4	S3
Plants	<i>Cuscuta exaltata</i>	tree dodder	G3	S3
Plants	<i>Astragalus reflexus</i>	Texas milk vetch	G3	S3
Plants	<i>Dalea hallii</i> *	Hall's prairie clover	G3	S3
Plants	<i>Phlox oklahomensis</i>	Oklahoma phlox	G3	SH
Plants	<i>Agalinis densiflora</i>	Osage Plains false foxglove	G3	S2
Plants	<i>Yucca necopina</i> *	Glen Rose yucca	G1G2	S1S2
Plants	<i>Hexalectris nitida</i> *	Glass Mountains coral-root	G3	S3
Plants	<i>Hexalectris warnockii</i> *	Warnock's coral-root	G2G3	S2

*Known occurrences from the TXNDD or iNaturalist near the project area.

(Note: The TXNDD is intended to assist users in avoiding harm to known locations of rare species or significant ecological features. Given the small proportion of public versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state. Please note that absence of information in the database does not imply that a species is absent from that area. Although it is based on the best data available to TPWD regarding rare species, the data from the TXNDD do not provide a definitive statement as to the presence, absence, or condition of special species, natural communities, or other significant features within your project area. These data are not inclusive, **cannot be used as presence/absence data**, and cannot be substituted for on-the-ground surveys.)

The Project is located within the Northern Blackland Prairie Ecoregion. Within the Texas Blackland Prairies ecoregion, priority habitats identified in the TCAP for conservation of SGCN in the vicinity of the project area include tallgrass prairie communities, riparian woodlands, freshwater wetlands, and oak savannahs and woodlands. TPWD encourages landowners and land agents to conserve priority habitats of the ecoregion and discourages fragmentation and loss to such habitats.

Within the Texas prairie regions, native grasslands have become lost due to agricultural practices, development, and woody encroachment. With the loss of native grasslands, wildlife associated with grassland habitats have declined including the loss of pollinators due to declining floral resources. TPWD encourages landowners and land agents to conserve pockets of remaining native grassland habitats. A review of the TXNDD revealed some small pockets of Vertisol Blackland Prairies (*Schizachyrium scoparium* – *Sorghastrum nutans* – *Andropogon gerardii* - *Bifora Americana* Vertisol Grassland) Series G1G2SNR Communities within Dallas County. These occurrences indicate that prairie remnants have been found near the project area and that other areas not currently assessed may also exhibit native prairie remnants.

The TPWD TEAM was developed by the Landscape Ecology Program and provides systems, mapping subsystems, and vegetative types for Texas which can assist in planning projects to avoid impacts to important habitats in an ecoregion. The TCAP and TEAM vegetation data can assist in identifying and avoiding areas of potential priority habitats; however, the TEAM should be used in conjunction site-specific soils data and on-the-ground surveys of the vegetation when assessing potential project impacts on listed species, SGCN, and priority habitats.

Although the DFW National Cemetery is set among an urban setting, it contains undeveloped areas that serve as suitable habitat for rare resources. The TEAM indicates that the project footprint occurs within native invasive woodlands and shrublands which are suitable habitats for the eastern spotted skunk and timber rattlesnake. The native invasive woodlands and shrublands may also include native grasslands remnants being invaded by woody species which may support other SGCN for Dallas County.

The TEAM indicates that a portion of the project footprint occurs within oak-hardwood slope forests. Oak-juniper slope forest on limestone slopes of the White Rock Escarpment are known locally to support Warnock's coral root orchids. Because slope

forests occur within the project footprint, there is potential for unmapped oak-juniper forest to occur that may support rare coral-root orchids. However, without details regarding the species occurring at the project site, it is difficult to interpret the quality of the habitats using only publicly-available desktop datasets.

Recommendation: TPWD recommends delineating the vegetation communities and species occurring within the proposed disturbance areas to identify the types of habitats being impacted.

Recommendation: TPWD recommends minimizing habitat removal and avoiding disturbance to native grasslands and oak-juniper slope forests, if detected during site surveys. If portions of the project disturbance area include invasive deciduous woodlands and shrubland that have invaded native grasslands, then those areas would be appropriate for tree removal, temporary construction staging, and followed by restoration to native grassland. In areas exhibiting native grassland characteristics, scraping and grading of the herbaceous vegetation should be kept to a minimum to preserve existing native herbaceous vegetation.

Recommendation: If project disturbances must occur within remnants of native grasslands or oak-juniper slope forests, TPWD recommends surveying for SGCN plants during the season of highest detection and avoiding disturbance of rare plants to the extent feasible. TPWD encourages clearly marking individual rare plants or areas found to contain rare plants as work zone avoidance areas prior to construction, maintenance and operation activities.

Recommendation: To aid in the scientific knowledge of a species' status and current range, TPWD encourages reporting encounters of SGCN, threatened, and endangered species to the TXNDD according to the data submittal instructions found on the TXNDD website. An alternative method for reporting observations of species is the iNaturalist citizen science app in which plant and animal observations are uploaded from a smartphone. The observer then selects to add the observation to specific TPWD Texas Nature Tracker Projects appropriate for the taxa observed, including Herps of Texas, Birds of Texas, Texas Eagle Nests, Texas Whooper Watch, Mammals of Texas, Rare Plants of Texas, Bees & Wasps of Texas, Terrestrial Mollusks of Texas, Texas Freshwater Mussels, Fishes of Texas, and All Texas Nature.

The project indicates that the lake and wetland dredge material will be placed in spoil piles at various locations.

Recommendation: TPWD recommends the EA identify if the spoil piles will be retained on site permanently, either for use at the property in the future or permanently placed, graded, and revegetated. If the spoil piles are intended to be taken off site for other uses, then TPWD recommends directly trucking off site for use elsewhere. If immediate trucking off site is not feasible, or if the spoil piles are to be retained on-site, then TPWD recommends placing the spoils on sites degraded by past use and on sites exhibiting non-native or invasive species, while avoiding

Mr. Stephen E. Davis
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April 27, 2020

areas of native vegetation including native grasslands exhibiting native vegetation species diversity. The EA should indicate the reason for selecting the proposed spoil sites, identify the previous uses of the sites, identify the vegetation species present at the proposed spoil sites, and identify the intended grading or revegetation plans for the spoil sites.

Significant declines in the population of migrating monarch butterflies (*Danaus plexippus*) have led to widespread concern about this species and other native insect pollinator species due to reductions in native floral resources. To support pollinators and migrating monarchs, TPWD encourages the establishment of native wildflower habitats on private and public lands across the state. Please refer to recent publications that can be found on TPWD's Native Pollinator website and TPWD's Monarch Butterfly website.

Recommendation: To accrue benefits for grassland wildlife and pollinators and to mitigate for unavoidable loss of native vegetation, TPWD recommends the VA revegetate areas disturbed by project activities with site-specific native species, with attention to providing habitat for pollinator species. TPWD recommends incorporating native grass and floral species into the permanent landscaping plan as funding and seed/plant availability allow and utilizing maintenance practices to promote the availability of flowering species throughout the growing season. Such a practice would also align with conservation initiatives of the City of Dallas' Bird City Texas certification.

Recommendation: TPWD recommends the VA attempt to avoid disturbance and retain undeveloped land within the property because it offers vegetation and wildlife diversity as indicated by TXNDD & iNaturalist observations, offers scenic vistas for cemetery visitors, and screens the views of neighboring development. TPWD recommends retaining the scenic beauty of the natural vegetation at the site by designing the project footprint to incorporate the existing natural native vegetation into the landscape plan. TPWD recommends creating natural areas that interconnect across the site to allow for wildlife travel corridors.

Thank you for considering project impacts to the fish and wildlife resources of Texas. For questions, please contact me at Karen.Hardin@tpwd.texas.gov or (903) 322-5001.

Sincerely,



Karen B. Hardin
Wildlife Habitat Assessment Program
Wildlife Division

kbh/43684

Ross Hackbarth

From: Kirian Brown <Kirian.Brown@tpwd.texas.gov>
Sent: Thursday, May 14, 2020 8:52 AM
To: Ross Hackbarth
Subject: RE: Veterans Lake

That sounds good to me. Let me know if I can assist further.

Bregan Brown
KAST Coordinator, Region 2
Inland Fisheries
Texas Parks and Wildlife Department
(903) 520-3821

From: Ross Hackbarth <ross@gsrcorp.com>
Sent: Thursday, May 14, 2020 8:50 AM
To: Kirian Brown <Kirian.Brown@tpwd.texas.gov>
Subject: RE: Veterans Lake

ALERT: This email came from an external source. Do not open attachments or click on links in unknown or unexpected emails.

Hi Kirian,

I will confirm whether or not dewatering will occur, but I don't believe that it will. And we were planning on implementing sedimentation control devices per requirements of the TPDES CGP – this has been addressed in the EA. So I think I will move forward with writing in Option 1 into the draft EA and we can make changes accordingly if details/scoping of the Proposed Action changes.

Thanks for helping me out on this!

Ross Hackbarth
Gulf South Research Corporation
Natural Resources Specialist
8081 Innovation Park Dr.
Baton Rouge, LA 70820
o: (225) 757-8088
c: (225) 348-6116

From: Kirian Brown [<mailto:Kirian.Brown@tpwd.texas.gov>]
Sent: Thursday, May 14, 2020 8:24 AM
To: Ross Hackbarth
Subject: RE: Veterans Lake

Good morning Ross,

I apologize for not clarifying, but the creek I am referring to is the outflow to Mountain Creek Lake. Any activities that may impact this creek section between Veterans Lake and Mountain Creek lake would be subject to the conditions in my previous email. I was under the impression from previous communications with WHAB that you were dewatering for this project. If you are not, siltation would be the only concern downstream. If you think impacts are unlikely, then option 1 would probably still be appropriate.

Bregan Brown
KAST Coordinator, Region 2
Inland Fisheries
Texas Parks and Wildlife Department
(903) 520-3821

From: Ross Hackbarth <ross@gsrcorp.com>
Sent: Thursday, May 14, 2020 12:16 AM
To: Kirian Brown <Kirian.Brown@tpwd.texas.gov>
Subject: RE: Veterans Lake

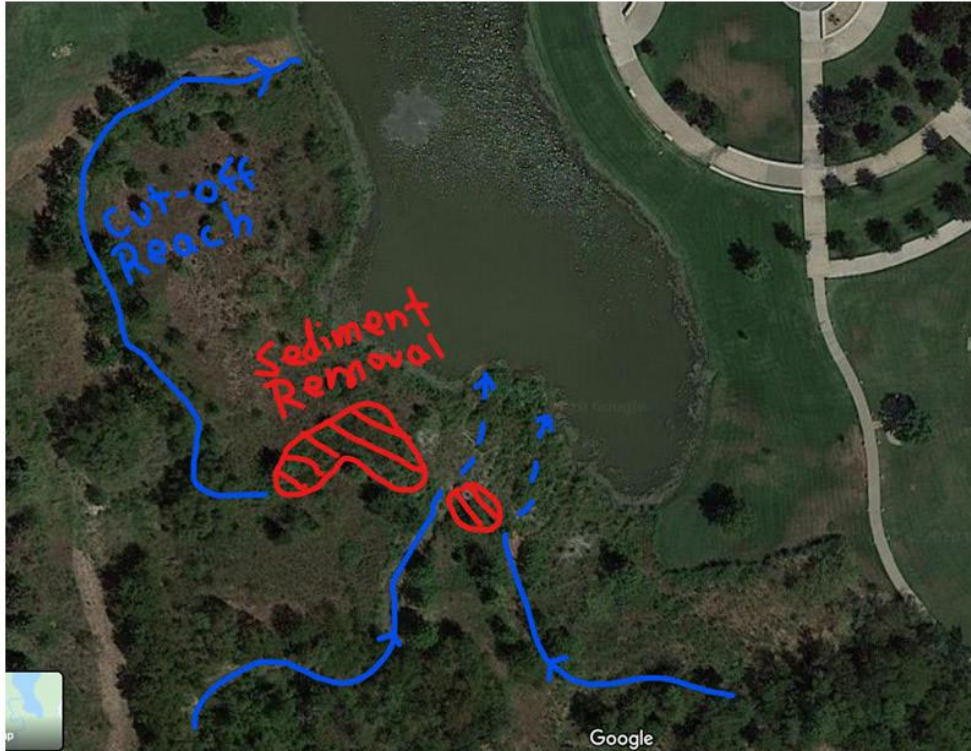
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Hey Bregan,

I'd like to clarify the exact action in the lake/creek prior to moving forward to make sure we're on the same page. Sediment would be removed from the lake with a barge-mounted dredge/excavator – the lake would not be drained prior to dredging. Sediment from Nancy's Creek would likely be removed from the bank – the sediment has accumulated so much that it has turned into a marshy cattail area – it is not a defined creek channel anymore with running water. So that area of built-up sediment/vegetation would be removed to restore flow to a portion of the channel that has been cut-off. Currently, the water is flowing straight north into the lake over the erosion-control gabions that were installed in 2000 when the lake was built. I've included a page from the original 2000 mitigation plan that shows the layout of the wetland mitigation area and original location of the creek channel.

I think based on the situation, we will go with Option 1 and I will write into the EA a requirement that you are called if fish, mussels, or other aquatic wildlife become stranded while sediment removal from Nancy's Creek is being conducted. Let me know if you have further comments/questions on the proposed activities.

Thank you,
Ross



Ross Hackbarth
Gulf South Research Corporation
Natural Resources Specialist
8081 Innovation Park Dr.
Baton Rouge, LA 70820
o: (225) 757-8088
c: (225) 348-6116

From: Kirian Brown [<mailto:Kirian.Brown@tpwd.texas.gov>]
Sent: Wednesday, May 13, 2020 4:57 PM
To: Ross Hackbarth
Subject: Re: Veterans Lake

Ross,

Good afternoon. After reviewing the location for the Veterans lake project, I have determined that the lake does not contain state owned aquatic resources and you will not need to develop an aquatic resource relocation plan unless you decide to voluntarily remove any fish, mussels, or wildlife you encounter during the drawdown.

The creek is a bit problematic. If the drawdown also affects the creek, you will have a few options, and I will leave it up to you to decide what you would like to do.

1. You may commence work without a permit and call me if you encounter stranded fish or mussels in the creek during the project. This option will require you to stop all work until I can join you and supervise the relocation of these resources.

2. You can develop an ARRP for the creek and proceed with relocating any resources you find as you need to. This option would require you to have someone on staff or subcontracted that is qualified in the identification and relocation of native fish and mussels species, and identification of invasive species. This person will ideally have a scientific collections permit issued by TPWD. You will receive an introduction permit upon submission of an approved ARRP. Keep in mind Inland Fisheries Permitting has up to 30 days to issue a permit for this type of work, though it rarely takes that long.

Please let me know what you would prefer or if you have any questions. The guidelines for developing an aquatic resource relocation plan are located here: https://tpwd.texas.gov/publications/pwdpubs/media/pwd_if_t3200_1958_arrp_guidelines_packet.pdf

Bregan Brown
KAST Coordinator, Region 2
TPWD
(903)520-3821

Sent from my iPhone

APPENDIX B
EMISSIONS CALCULATIONS (AIR QUALITY)

Air Quality – Emissions Calculations

Table 1. Equipment Assumptions for Combustion Emissions

2020-21 Construction Year (May 2020 to April 2021)					
Type of Construction Equipment	Number of Units	Horsepower (HP) Rated	Hours per day	Days per year	Total HP-hours
Water Truck	1	300	8	180	432,000
Road Compactor	1	100	8	90	72,000
Dump Truck	2	300	8	180	864,000
Excavator	2	300	8	90	432,000
Hole Trencher	1	175	8	90	126,000
Bore / Drill Rig	1	300	8	90	216,000
Cement & Mortar Mixer	2	300	8	90	432,000
Grader	1	300	8	180	432,000
Tractor / Loader / Backhoe	3	100	8	180	432,000
Bulldozer	3	300	8	180	1,296,000
Front-end Loader	2	300	8	180	864,000
Type of Personal Vehicle	Number of Units	Horsepower (HP) Rated	Miles per day	Days per year	Total Miles
Passenger Car (Gas)	3	120	20	260	15,600
Passenger Truck (Gas)	3	250	20	260	15,600
Passenger Truck (Diesel)	4	300	20	260	20,800
2021-22 Construction Year (May 2021 to April 2022)					
Type of Construction Equipment	Number of Units	Horsepower (HP) Rated	Hours per day	Days per year	Total HP-hours
Water Truck	1	300	8	120	288,000
Road Compactor	1	100	8	60	48,000
Dump Truck	2	300	8	120	576,000
Excavator	2	300	8	60	288,000
Hole Trencher	1	175	8	60	84,000
Bore / Drill Rig	1	300	8	60	144,000
Cement & Mortar Mixer	2	300	8	60	288,000
Grader	1	300	8	120	288,000
Tractor / Loader / Backhoe	3	100	8	120	288,000
Bulldozer	3	300	8	120	864,000
Front-end Loader	2	300	8	120	576,000
Type of Personal Vehicle	Number of Units	Horsepower (HP) Rated	Miles per day	Days per year	Total Miles
Passenger Car (Gas)	3	120	20	160	9,600
Passenger Truck (Gas)	3	250	20	160	9,600
Passenger Truck (Diesel)	4	300	20	160	12,800

Table 2. Emissions Factors

2020-21 Construction Year		
Type of Construction Equipment ¹	VOC g/hphr	NOx g/hphr
Water Truck	0.055	1.72
Road Compactor	0.088	1.51
Dump Truck	0.055	1.72
Excavator	0.043	0.856
Hole Trencher	0.149	2.47
Bore / Drill Rig	0.226	3.17
Cement & Mortar Mixer	0.394	3.77
Grader	0.046	0.725
Tractor / Loader / Backhoe	0.512	3.11
Bulldozer	0.063	1.2
Front-end Loader	0.09	1.55
Type of Personal Vehicle ²	VOC g/hphr	NOx g/hphr
Passenger Car (Gas)	4.4E-05	0.0002
Passenger Truck (Gas)	0.0001	0.0005
Passenger Truck (Diesel)	0.0002	0.0021

¹ Source: GSRC modeling results using MOVES 2014b (Nonroad model, Dallas County, 2020)

² Source: GSRC modeling results using MOVES 2014b (Onroad model, Nation, 2020)

2021-22 Construction Year		
Type of Construction Equipment ³	VOC g/hphr	NOx g/hphr
Water Truck	0.047	1.61
Road Compactor	0.074	1.36
Dump Truck	0.047	1.61
Excavator	0.036	0.699
Hole Trencher	0.122	2.26
Bore / Drill Rig	0.208	2.95
Cement & Mortar Mixer	0.371	3.57
Grader	0.038	0.597
Tractor / Loader / Backhoe	0.457	2.86
Bulldozer	0.053	1.05
Front-end Loader	0.077	1.37
Type of Personal Vehicle ⁴	VOC g/hphr	NOx g/hphr
Passenger Car (Gas)	4.4E-05	0.0002
Passenger Truck (Gas)	0.0001	0.0005
Passenger Truck (Diesel)	0.0002	0.0021

³ Source: GSRC modeling results using MOVES 2014b (Nonroad model, Dallas County, 2021)

⁴ Source: GSRC modeling results using MOVES 2014b (Onroad model, Nation, 2021)

Table 3. Total Emissions Calculation

2020-21 Construction Year		
Type of Construction Equipment	VOC tons/yr	NOx tons/yr
Water Truck	0.03	0.82
Road Compactor	0.01	0.12
Dump Truck	0.05	1.64
Excavator	0.02	0.41
Hole Trencher	0.02	0.34
Bore / Drill Rig	0.05	0.75
Cement & Mortar Mixer	0.19	1.79
Grader	0.02	0.35
Tractor / Loader / Backhoe	0.24	1.48
Bulldozer	0.09	1.71
Front-end Loader	0.09	1.48
Type of Personal Vehicle ⁴	VOC tons/yr	NOx tons/yr
Passenger Car (Gas)	0.0003	0.0016
Passenger Truck (Gas)	0.0008	0.0039
Passenger Truck (Diesel)	0.0021	0.0218
Total Emissions	0.81	10.89

2021-22 Construction Year		
Type of Construction Equipment	VOC tons/yr	NOx tons/yr
Water Truck	0.015	0.51
Road Compactor	0.004	0.07
Dump Truck	0.030	1.02
Excavator	0.011	0.22
Hole Trencher	0.011	0.21
Bore / Drill Rig	0.033	0.47
Cement & Mortar Mixer	0.118	1.13
Grader	0.012	0.19
Tractor / Loader / Backhoe	0.145	0.91
Bulldozer	0.050	1.00
Front-end Loader	0.049	0.87
Type of Personal Vehicle ⁴	VOC tons/yr	NOx tons/yr
Passenger Car (Gas)	0.0002	0.0010
Passenger Truck (Gas)	0.0005	0.0024
Passenger Truck (Diesel)	0.0013	0.0134
Total Emissions	0.48	6.60

Conversion Factors	
Grams to tons	1.102E-06
Pounds to tons	0.0005

APPENDIX C
FEMA 8-STEP PROCESS FOR FLOODPLAIN/WETLAND
MANAGEMENT

APPENDIX C

FEMA Eight-Step Planning Process for Floodplain/Wetland Management

The following is a walk-through of the Federal Emergency Management Act (FEMA) eight-step planning process for proposed construction and maintenance activities at Dallas-Fort Worth (DFW) National Cemetery, Dallas County, Texas. Completion of this planning process for proposed Federal actions is mandated by Executive Order (E.O.) 11988, Floodplain Management, and E.O. 11990, Protection of Wetlands. The decision-making process for these orders is described by 44 Code of Federal Regulations (CFR), Part (§) 9, Floodplain Management and Protection of Wetlands.

A brief description of the Proposed Action is given here. Further information regarding the Proposed Action and environmental considerations can be found in the Environmental Assessment (EA), entitled *Environmental Assessment for the Proposed Expansion and Improvements at the Dallas-Fort Worth National Cemetery, U.S. Department of Veterans Affairs, April 2020*.

Proposed Action:

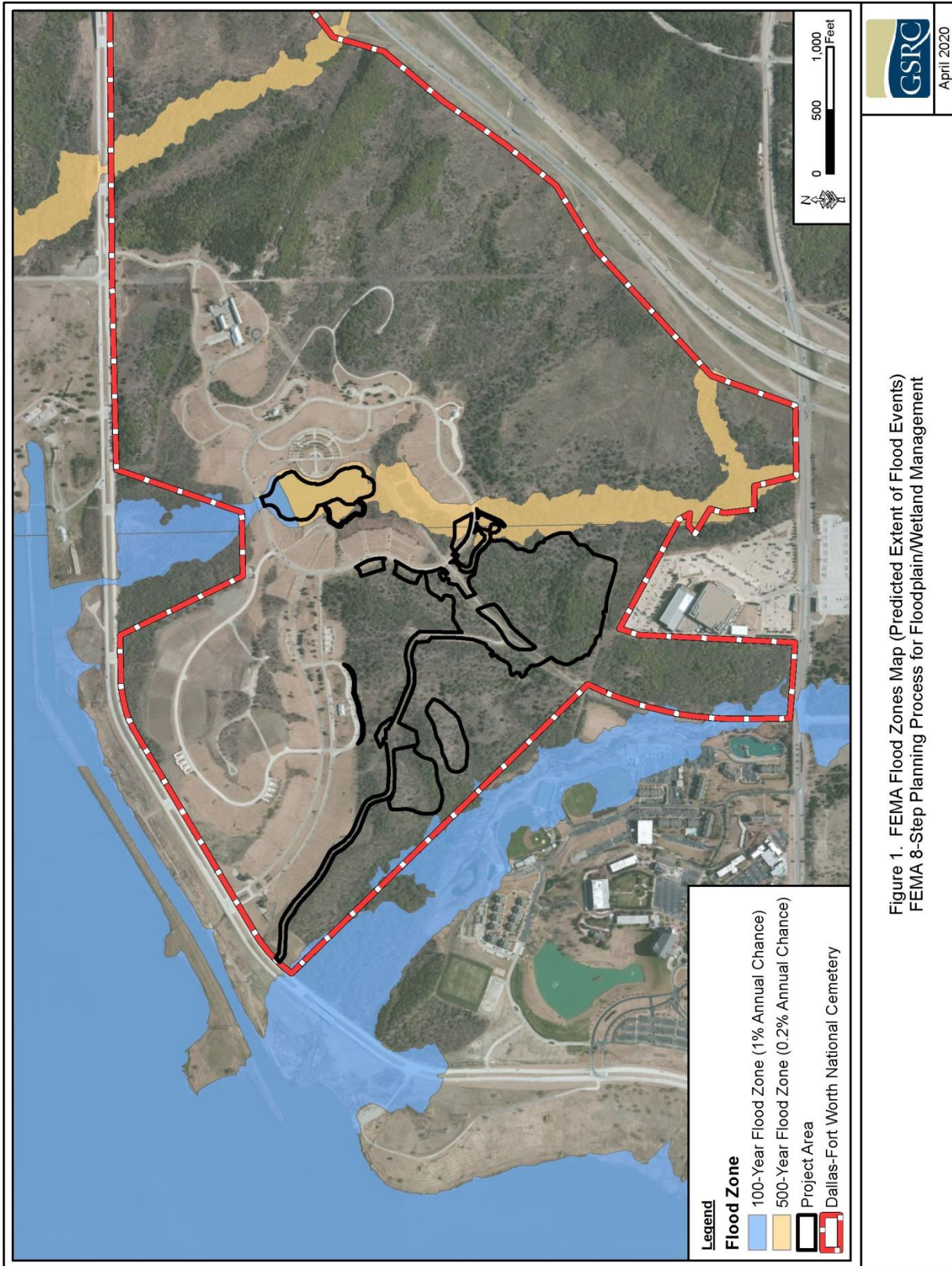
The VA proposes to expand its capacity for burial sites and columbaria to meet the demand for interment sites at the DFW National Cemetery and to ensure no break in service to the regional veteran community. A new site would be developed for a 9,000-niche columbarium. Additionally, a new burial expansion site to include new roadways, 8,000 pre-placed crypts, and 6,000 in-ground cremain burial plots would be constructed. Other improvements would include the proposed construction and maintenance of a fourth committal service shelter and a fourth cortege lane. Furthermore, dredging of Veterans Lake and the adjacent wetland mitigation area would occur to remove sediments and restore intended water flow patterns.

Step 1. Determine whether the proposed action is located in a wetland and/or the 100-year floodplain (500-year floodplain for critical actions⁷); and whether it has the potential to affect or be affected by a floodplain or wetland.

A portion of the proposed lake dredging would occur within the 100-year flood zone, which is defined as an area with a 1-percent annual chance of experiencing flooding (Figure 1). Dredging and maintenance to the Nancy's Creek wetland mitigation area would occur in an area partially occupied by potential jurisdictional wetlands (Figure 2). The proposed lake dredging and wetland mitigation area maintenance activities are intended to beneficially impact floodplains and wetlands in the area. Removal of sediments will restore local hydrology and improve the water-holding capacity of the lake. No adverse impacts to floodplains or wetlands are anticipated from this action.

No proposed construction areas are located within the 100-year flood zone or wetland areas; a small portion of the proposed committal service shelter construction area is located within the 500-year floodplain. The committal service shelter would be built to elevation with the existing road grade of the adjacent Lone Star Circle, which is above the 500-year floodplain elevation. The proposed construction of the committal service shelter is not considered a critical action, and no further discussion of this action or its interactions with the 500-year floodplain will occur here.

⁷ Critical Action means an action for which even a slight chance of flooding is too great. Examples include hospitals, nursing homes, emergency operation centers, data storage centers, and generating plants (44 CFR § 9.4).



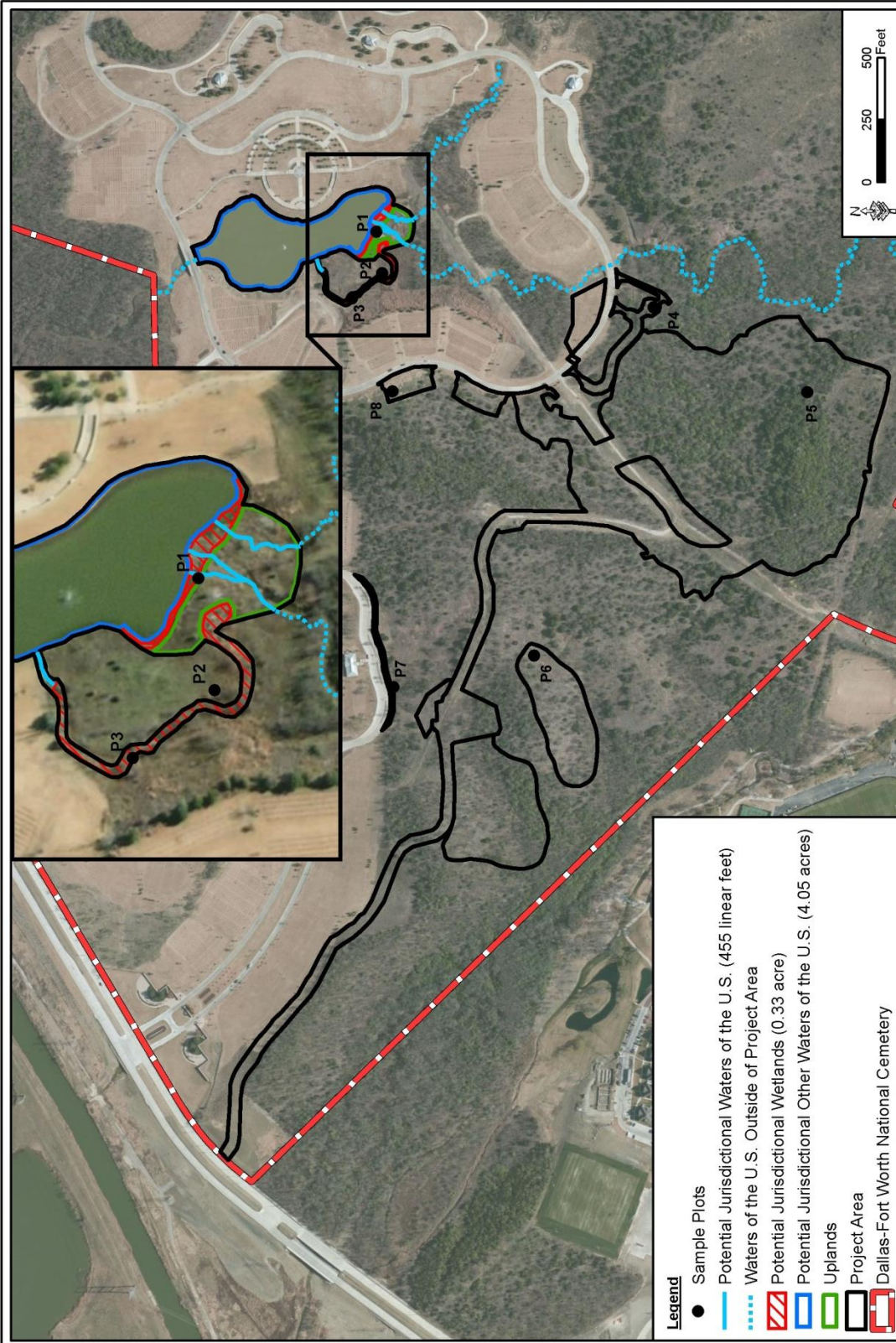


Figure 2. Wetlands Map
FEMA 8-Step Planning Process for Floodplain/Wetland Management

Step 2. Notify the public at the earliest possible time of the intent to carry out an action in a floodplain or wetland, and involve the affected and interested public in the decision-making process.

Coordination letters for participation in the EA process were sent to appropriate Federal agencies and tribal leaders on March 27, 2020. The general public is invited to participate in the process and will be notified of the release of the Draft EA by a future Notice of Availability (NOA) in local newspapers. The draft EA will be made available to the public on-line through the U.S. Army Corps of Engineers (USACE), Fort Worth District, as well as local libraries, per guidance by 38 CFR Part 26.

Step 3. Identify and evaluate practicable alternatives to locating the proposed action in a floodplain or wetland (including alternative sites, actions and the “no action” option) (see § 9.9). If a practicable alternative exists outside the floodplain or wetland FEMA must locate the action at the alternative site.

The proposed action to occur in the 100-year floodplain and potential jurisdictional wetland is intended to improve the hydrologic functioning of the floodplain and wetland. No construction will occur in the 100-year floodplain or wetlands, and thus identification of alternative sites is not necessary. No further discussion of alternative sites will occur.

Step 4. Identify the potential direct and indirect impacts associated with the occupancy or modification of floodplains and wetlands and the potential direct and indirect support of floodplain and wetland development that could result from the proposed action.

All potential impacts to floodplains and wetlands by the Proposed Action are considered to be beneficial in nature. Removal of sediment from Veterans Lake and a portion of Nancy’s Creek will improve water flow capabilities and water-holding capacity. Repair of erosion control infrastructure along Nancy’s Creek and Veterans Lake, if done correctly, will prevent future alterations to the path of water flow through the reach of Nancy’s Creek immediately upstream from Veterans Lake. These repairs will also re-stabilize the southern shore of Veterans Lake and promote the growth of hydrophytic and aquatic vegetation. Mandatory plantings of aquatic vegetation along this southern shore will further promote establishment of vegetation and continued development and strengthening of wetland conditions.

Step 5. Minimize the potential adverse impacts and support to or within floodplains and wetlands to be identified under Step 4, restore and preserve the natural and beneficial values served by floodplains, and preserve and enhance the natural and beneficial values served by wetlands.

The Proposed Action is not expected to have any adverse impacts on floodplains or wetlands. Beneficial impacts are described above in Step 4 and in the Water Resources section of the EA (Section 3.4).

Step 6. Reevaluate the proposed action to determine first, if it is still practicable in light of its exposure to flood hazards, the extent to which it will aggravate the hazards to others, and its potential to disrupt floodplain and wetland values and second, if alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5. FEMA shall not act in a floodplain or wetland unless it is the only practicable location.

No proposed construction activities will occur within the 100-year floodplain or potential jurisdictional wetlands.

Step 7. Prepare and provide the public with a finding and public explanation of any final decision that the floodplain or wetland is the only practicable alternative.

No proposed construction activities will occur within the 100-year floodplain or potential jurisdictional wetlands. The project's EA (of which this is an appendix) will serve as the public explanation of final decision to conduct activities in a 100-year floodplain and wetland that will have beneficial impacts to those areas (i.e., dredging and wetland mitigation area maintenance activities).

Step 8. Review the implementation and post-implementation phases of the proposed action to ensure that the requirements stated in 44 CFR § 9.11 are fully implemented. Oversight responsibility shall be integrated into existing processes.

Due to the nature of an EA being a pre-implementation document for a Proposed Action, no review of implementation or post-implementation phases can be conducted at this time. During and after implementation of proposed dredging and wetland mitigation maintenance activities, monitoring and inspection will occur to ensure that the project's goals have been accomplished. Dredging success will be measured by successful re-establishment of the original design depth of Veterans Lake by the mitigation plan produced by Carter & Burgess in 1998. Success of dredging and maintenance activities in the Nancy's Creek wetland mitigation area will be determined by observation of high-flow water events through the lower reach of Nancy's Creek. Monitoring will need to occur for multiple years after implementation of the Proposed Action to ensure that erosion control devices remain stable and maintain the design depth and height of the lower reach of Nancy's Creek and its banks. Further, monitoring should occur in order to understand sediment deposition patterns in this reach of Nancy's Creek in order to prevent future blockages by excess sedimentation.

APPENDIX D
BIOLOGICAL RESOURCES SPECIES LIST

Biological Resources Species List

The following species were observed during biological surveys that occurred at the Dallas-Fort Worth National Cemetery on May 7 and December 11, 2019, and January 27, 2020. Surveys were performed by Gulf South Research Corporation (Ross Hackbarth, Lauren Solomon, AJ Pate) and consisted of meandering pedestrian transects throughout the project area. Species are divided by animal groups (Table 1) and plants (Table 2).

Table 1. Animal Species

Common name	Scientific name	Observation Type
Birds		
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Visual
Mallard	<i>Anas platyrhynchos</i>	Visual
Great egret	<i>Ardea alba</i>	Visual – flyover
Great blue heron	<i>Ardea herodias</i>	Visual – flyover
Cattle egret	<i>Bubulcus ibis</i>	Visual
Red-tailed hawk	<i>Buteo jamaicensis</i>	Visual
Northern cardinal	<i>Cardinalis cardinalis</i>	Visual
Turkey vulture	<i>Cathartes aura</i>	Visual
Swainson's thrush	<i>Catharus ustulatus</i>	Visual
Killdeer	<i>Charadrius vociferus</i>	Visual
American crow	<i>Corvus brachyrhynchos</i>	Visual
Blue jay	<i>Cyanocitta cristata</i>	Visual
Gray catbird	<i>Dumetella carolinensis</i>	Visual
House finch	<i>Haemorhous mexicanus</i>	Visual
Bald eagle	<i>Haliaeetus leucocephalus</i>	Visual – flyover
Barn swallow	<i>Hirundo rustica</i>	Visual
Dark-eyed junco	<i>Junco hyemalis</i>	Visual
American wigeon	<i>Mareca americana</i>	Visual
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	Visual
Lincoln's sparrow	<i>Melospiza lincolni</i>	Visual
Song sparrow	<i>Melospiza melodia</i>	Visual
Northern mockingbird	<i>Mimus polyglottos</i>	Visual
Brown-headed cowbird	<i>Molothrus ater</i>	Visual
Great-crested flycatcher	<i>Myiarchus crinitus</i>	Visual
Osprey	<i>Pandion haliaetus</i>	Visual – flyover
Painted bunting	<i>Passerina ciris</i>	Visual
Indigo bunting	<i>Passerina cyanea</i>	Visual
Downy woodpecker	<i>Picoides pubescens</i>	Visual
Eastern towhee	<i>Pipilo erythrophthalmus</i>	Visual
Carolina chickadee	<i>Poecile carolinensis</i>	Visual
Blue-gray gnatcatcher	<i>Poliophtila caerulea</i>	Visual
Great-tailed grackle	<i>Quiscalus mexicanus</i>	Visual

Common name	Scientific name	Observation Type
Eastern phoebe	<i>Sayornis phoebe</i>	Visual
Yellow-rumped warbler	<i>Setophaga coronata</i>	Visual
Yellow warbler	<i>Setophaga petechia</i>	Visual
Eastern bluebird	<i>Sialia sialis</i>	Visual
American goldfinch	<i>Spinus tristis</i>	Visual
Chipping sparrow	<i>Spizella passerina</i>	Visual
Carolina wren	<i>Thryothorus ludovicianus</i>	Visual
Scissor-tailed flycatcher	<i>Tyrannus forficatus</i>	Visual
White-eyed vireo	<i>Vireo griseus</i>	Visual
Red-eyed vireo	<i>Vireo olivaceus</i>	Visual
Mourning dove	<i>Zenaida macroura</i>	Visual
Harris's sparrow	<i>Zonotrichia querula</i>	Visual
Reptiles and Amphibians		
Blanchard's cricket frog	<i>Acris blanchardi</i>	Visual
Spiny softshell turtle	<i>Apalone spinifera</i>	Visual
Rough earth snake	<i>Haldea striatula</i>	Visual (under cover)
Diamondback watersnake	<i>Nerodia rhombifer</i>	Visual
Red-eared slider	<i>Trachemys scripta elegans</i>	Visual
Mammals		
Coyote	<i>Canis latrans</i>	Tracks
Raccoon	<i>Procyon lotor</i>	Tracks
Fox squirrel	<i>Sciurus niger</i>	Visual
Eastern cottontail	<i>Sylvilagus floridanus</i>	Visual
Butterflies		
Gulf fritillary	<i>Agraulis vanillae</i>	Visual
Hackberry emperor	<i>Asterocampa celtis</i>	Visual
Orange sulphur	<i>Colias eurytheme</i>	Visual
Monarch	<i>Danaus plexippus</i>	Visual
Common buckeye	<i>Junonia coenia</i>	Visual
Black swallowtail	<i>Papilio polyxenes</i>	Visual
Cabbage white	<i>Pieris rapae</i>	Visual
Other Invertebrates		
Mantled brackettail	<i>Epitheca semiaquea</i>	Visual
Eastern amberwing	<i>Perithemis tenera</i>	Visual
Rabid wolf spider	<i>Rabidosa rabida</i>	Visual
Striped bark scorpion	<i>Centruroides vittatus</i>	Visual (under cover)

Table 2. Plant Species

Common Name	Scientific Name	Growth Form
Plants		
Lesser ragweed	<i>Ambrosia artemisiifolia</i>	Forb
Giant ragweed	<i>Ambrosia trifida</i>	Forb
Prairie broomweed	<i>Amphiachyris dracunculoides</i>	Forb
Green milkweed	<i>Asclepias viridis</i>	Forb
Little quaking-grass	<i>Briza minor</i>	Graminoid
Pecan	<i>Carya illinoensis</i>	Tree
Sugarberry	<i>Celtis laevigata</i>	Tree
Texas thistle	<i>Cirsium texanum</i>	Forb
Sorrelvine	<i>Cissus trifoliata</i>	Vine
Bermuda grass	<i>Cynodon dactylon</i>	Graminoid
Queen Anne's lace	<i>Daucus carota</i>	Forb
Carolina larkspur	<i>Delphinium carolinum virescens</i>	Forb
Virginia wildrye	<i>Elymus virginicus</i>	Graminoid
Horseweed	<i>Erigeron canadensis</i>	Forb
Honey locust	<i>Gleditsia triacanthos</i>	Tree
Common sunflower	<i>Helianthus annuus</i>	Forb
Ashe juniper	<i>Juniperus ashei</i>	Tree/Shrub
Eastern red cedar	<i>Juniperus virginiana</i>	Tree/Shrub
Waxyleaf privet	<i>Ligustrum quihoui</i>	Shrub
Creeping water-primrose	<i>Ludwigia peploides</i>	Aquatic Forb
Texas bluebonnet	<i>Lupinus texensis</i>	Forb
Osage orange	<i>Maclura pomifera</i>	Tree
Black medick	<i>Medicago lupulina</i>	Forb
Yellow sweet clover	<i>Melilotus officinalis</i>	Forb
Fourvalve mimosa	<i>Mimosa quadrivalvis</i>	Forb
Spotted beebalm	<i>Monarda punctata</i>	Forb
Roadside gaura	<i>Oenothera suffulta</i>	Forb
Texas prickly pear	<i>Opuntia engelmannii</i>	Cactus
Switchgrass	<i>Panicum virgatum</i>	Graminoid
Virginia creeper	<i>Parthenocissus quinquefolia</i>	Forb
Texas frogfruit	<i>Phyla nodiflora</i>	Forb
Virginia plantain	<i>Plantago virginica</i>	Forb
American basketflower	<i>Plectrocephalus americanus</i>	Forb
Texas prairie parsley	<i>Polytaenia texana</i>	Forb
Eastern cottonwood	<i>Populus deltoides</i>	Tree
Long-leaved pondweed	<i>Potamogeton nodosus</i>	Aquatic Forb
Honey mesquite	<i>Prosopis glandulosa</i>	Tree
Callery pear	<i>Pyrus calleryana</i>	Tree
Bur oak	<i>Quercus macrocarpa</i>	Tree
Southern dewberry	<i>Rubus trivialis</i>	Forb/Shrub

Common Name	Scientific Name	Growth Form
Black willow	<i>Salix nigra</i>	Tree
Western soapberry	<i>Sapindus drummondii</i>	Tree/Shrub
Common groundsel	<i>Senecio vulgaris</i>	Forb
Blue-eyed grass	<i>Sisyrinchium</i> sp.	Forb
Saw greenbrier	<i>Smilax bona-nox</i>	Vine
Western horsenettle	<i>Solanum dimidiatum</i>	Forb
Canada goldenrod	<i>Solidago canadensis</i>	Forb
Spreading hedgeparsley	<i>Torilis arvensis</i>	Forb
Chinese tallow tree	<i>Triadica sebifera</i>	Tree
Clasping Venus' looking-glass	<i>Triodanis perfoliata</i>	Forb
Southern cattail	<i>Typha domingensis</i>	Forb
Cedar elm	<i>Ulmus crassifolia</i>	Tree
Louisiana vetch	<i>Vicia ludoviciana</i>	Forb
Common vetch	<i>Vicia sativa</i>	Forb