Final Environmental Assessment for a New Drinking Water Treatment Plant at Marine Corps Air Ground Combat Center, Twentynine Palms, California

August 2018

Prepared by:

United States Department of the Navy

and

United States Marine Corps

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DEPARTMENT OF DEFENSE
UNITED STATES MARINE CORPS
FINDING OF NO SIGNIFICANT IMPACT FOR CONSTRUCTION AND OPERATION OF A NEW DRINKING WATER TREATMENT PLANT AND ANCILLARY INFRASTRUCTURE IMPROVEMENTS AT THE MARINE AIR GROUND TASK FORCE TRAINING COMMAND, MARINE CORPS AIR GROUND COMBAT CENTER, TWENTYNINE PALMS, CALIFORNIA

Pursuant to the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations Parts 1500-1508) implementing procedural provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States [U.S.] Code §§ 4321-4370h); and U.S. Marine Corps (USMC) procedures for implementing NEPA, as described in Marine Corps Order P5090.2A, Change 3, dated 26 August 2013, *Environmental Compliance and Protection Manual*, the USMC gives notice that an Environmental Assessment (EA) has been prepared and an Environmental Impact Statement (EIS) will not be prepared for the proposed Construction and Operation of a New Drinking Water Treatment Plant and Ancillary Infrastructure Improvements at the Marine Air Ground Task Force Training Command (MAGTFTC), Marine Corps Air Ground Combat Center (MCAGCC) located at Twentynine Palms, California (herein referred to as the Combat Center). Based on the analysis provided in the EA, I have selected the Proposed Action (Alternative 1) and find that it will not have a significant impact on the human environment, and, therefore, an EIS is not required.

Background: This EA has been prepared to evaluate the potential environmental impacts associated with the construction and operation of a new drinking water treatment plant and ancillary infrastructure improvements within existing training areas at the Combat Center. The purpose of the Proposed Action is to ensure continued availability of safe, regulatory compliant potable water for the Marines, civilian personnel, and residents and to sustain the Combat Center's mission. The Proposed Action is needed because the Combat Center has been reliant on a single groundwater source (Surprise Springs) to provide all potable water for over 60 years. This reliance is not sustainable and requires the use of an additional aquifer (Deadman) to reduce over drafting of the Surprise Springs aquifer. The water quality of the Deadman aquifer does not meet California drinking water standards and Surprise Springs will continue to degrade in quality and availability over time, requiring the construction of a drinking water treatment facility. Implementation of the Proposed Action would remedy this situation.

Proposed Action: The Proposed Action includes the construction of a system that treats and blends groundwater for potable drinking water from the Surprise Springs and the Deadman subbasins. The elements of the Proposed Action would consist of five infrastructure projects, including: (1) construction of a new drinking water treatment plant; (2) installation of potable water transmission lines; (3) construction and installation of supporting utilities to include electrical utilities (primary and secondary distribution system, telecommunications information systems infrastructure and an industrial control system, fiber optic cable, high voltage cable, and emergency back-up generator, and a transformer; (4) construction of three new 1,000 gallon-per-minute water wells; and (5) roadwork to include improvement, maintenance, and repair of approximately 2.66 linear miles of an existing supply route, construction of approximately 160 linear feet of road to access the new drinking water treatment plant from the existing supply route, improvement, maintenance, and repair of approximately 1.78 linear miles of existing roads from the new drinking water treatment plant to the new water wells, and construction of parking areas and roads within the perimeter fence of the new drinking water treatment plant and around each water well site. The Proposed Action would occur on land and along existing roads within the Combat Center's Sandhill Training Area that contains densities (21-50 per square mile) of desert tortoises (*Gopherus agassizii*), are

not known to contain any other federally listed or special-status species, have been surveyed and confirmed to have no cultural resource concerns, and are Category 1 (i.e., restricted) and Category 2 (i.e., sensitive) Special Use Areas. The Proposed Action would permanently impact approximately 69.25 acres (28.02 hectares).

Alternatives: The EA evaluates the Proposed Action (Alternative 1), Alternative 2, and the No Action Alternative. Under the No Action Alternative, the Combat Center would continue to use untreated groundwater from the Surprise Springs Subbasin, as neither the new drinking water treatment plant nor the three water wells would be constructed nor would ancillary improvements occur to existing roads or related infrastructure. Alternative 2 is similar to the Proposed Action, but it would use a different water treatment process than the Proposed Action.

Summary of Environmental Impacts: The EA analyzes the potential environmental impacts associated with implementation of the Proposed Action and the No-Action Alternative. The resources most likely to be affected by this action are geological resources, biological resources, water resources, air quality, cultural resources, public health and safety, and utilities. Conversely, impacts to the following resources were considered to be negligible or non-existent and were not further analyzed in the EA; land use, recreation, aesthetic, environmental justice, protection of children, socioeconomics, and noise. Implementation of the Proposed Action will not result in significant environmental impacts. The Proposed Action will not have significant direct, indirect, or cumulative impacts on the quality of the local environment and will comply with all regulatory requirements. All proposed activities will be done in accordance with the Minimization, Mitigation, and Monitoring Implementation Plan listed in Appendix C of the EA. Formal consultations with the State Historic Preservation Officer and federally recognized Tribes have been completed. Cumulative effects of the Proposed Action in combination with other past, present, or reasonably foreseeable future actions would not be significant.

Findings: There will not be any disproportionately high and adverse human health or environmental effects from the Proposed Action on minority and low-income populations. There will not be any impacts on the protection of children from environmental health and safety risks.

The EA and FONSI addressing this action are on file, and interested parties may obtain a copy from: Environmental Affairs, Building 1418, MAGTFTC, MCAGCC, Twentynine Palms, California, 92278. Direct telephone inquiries to Mr. Scott Kerr at (760) 830-8190. A limited number of copies of the EA are available to fill single-copy requests.

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Date

R. B. TURNER, JR
Brigadier General, United States Marine Corps

ENVIRONMENTAL ASSESSMENT

Lead Agency: United States Marine Corps, Department of the Navy

Title of Proposed Action: New Drinking Water Treatment Plant at Marine Corps Air Ground Combat Center, Twentynine Palms, California

Affected Region: San Bernardino County, California

Designation: Environmental Assessment

Abstract

This Environmental Assessment (EA) has been prepared to evaluate potential environmental impacts associated with construction and operation of a new drinking water treatment plant and ancillary infrastructure improvements at the Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center at Twentynine Palms, California. This EA been prepared by the United States Marine Corps in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code §§ 4321-4370h); Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); Department of the Navy procedures for implementing NEPA (32 CFR Part 775); and Marine Corps Order P5090.2A, Change 3, dated 26 August 2013, *Environmental Compliance and Protection Manual*.

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared to evaluate potential environmental impacts associated with construction and operation of a new drinking water treatment plant and ancillary infrastructure improvements at the Marine Air Ground Task Force Training Command (MAGTFTC)/Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, California (herein referred to as the "Combat Center" or the "installation").

This EA has been prepared by the United States (U.S.) Marine Corps in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code §§ 4321-4370h); Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); Department of the Navy procedures for implementing NEPA (32 CFR Part 775); and Marine Corps Order (MCO) P5090.2A, Change 3, dated 26 August 2013, *Environmental Compliance and Protection Manual*.

The purpose of the Proposed Action is to ensure continued availability of safe, regulatory compliant potable water for the Marines, civilian personnel, and residents and to sustain the Combat Center's mission. The Proposed Action is needed because the Combat Center has been reliant on a single groundwater source (Surprise Springs) to provide all potable water for over 60 years. This reliance is not sustainable and requires the use of an additional aquifer (Deadman) to reduce overdrafting of the Surprise Springs Aquifer. The water quality of the Deadman Aquifer does not meet California drinking water standards and Surprise Springs will continue to degrade in quality and availability over time, requiring the construction of a drinking water treatment facility.

Three alternatives are evaluated in this EA: Alternative 1 (Proposed Action), Alternative 2, and the No-Action Alternative. The elements of the Proposed Action would consist of five infrastructure projects, including: (1) construction of a new drinking water treatment plant; (2) installation of potable water transmission lines; (3) construction and installation of supporting utilities to include electrical utilities (primary and secondary distribution system, telecommunications information systems infrastructure and an industrial control system, fiber optic cable, high voltage cable, and emergency back-up generator, and a transformer; (4) construction of three new 1,000 gallon-per-minute water wells; and (5) roadwork to include improvement, maintenance, and repair of approximately 2.66 linear miles of an existing supply route, construction of approximately 160 linear feet of road to access the new drinking water treatment plant from the existing supply route, improvement, maintenance, and repair of approximately 1.78 linear miles of existing roads from the new drinking water treatment plant to the new water wells, and construction of parking areas and roads within the perimeter fence of the new drinking water treatment plant and around each water well site. The Proposed Action would occur on land and along existing roads within the Combat Center's Sandhill Training Area that contains densities (21-50 per square mile) of desert tortoises (*Gopherus agassizii*), are not known to contain any other federally listed or special-status species, have been surveyed and confirmed to have no cultural resource concerns, and are Category 1 (i.e., restricted) and Category 2 (i.e., sensitive) Special Use Areas. The Proposed Action would permanently impact approximately 69.25 acres (28.02 hectares). Alternative 2 is similar to Alternative 1 but it would use a different water treatment process than Alternative 1. Under the No-Action Alternative, the Proposed Action would not be implemented and the Combat Center's current water system would continue to be utilized.

Alternatives to the Proposed Action must be considered in accordance with NEPA, CEQ regulations for implementing NEPA, and MCO P5090.2A. However, only those alternatives determined to be reasonable relative to their ability to fulfill the purpose of and need for the Proposed Action require detailed analysis. Other action alternatives were considered but were not carried forward for analysis in this EA because

they do not meet the purpose of and need for the Proposed Action. Although the No-Action Alternative is not a viable alternative, it is evaluated in this EA as required by NEPA and CEQ regulations.

This EA focuses on geological resources, biological resources, cultural resources, water resources, air quality, public health and safety, and utilities. Cumulative effects of the Proposed Action in combination with other past, present, or reasonably foreseeable actions were also analyzed. A summary of environmental consequences with implementation of the Proposed Action or the No-Action Alternative is presented in Table ES-1. No significant impacts were identified for any of the alternatives.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative

RESOURCE: Geology	
No-Action Alternative	***Proposed Action****
Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to baseline geological resources. Therefore, implementation of the No-Action Alternative would not significantly impact geological resources	Although soil would be disturbed during construction activities, construction would be performed in such a way as to minimize effects to the natural drainages, slope, and soil stability through the implementation of best management practices. A qualified Stormwater Pollution Prevention Plan (SWPPP) developer would create a SWPPP and deliver a Notice of Intent to the Environmental Affairs Water Resources Manager prior to construction. Therefore, implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below would not significantly impact geological resources. **P1**: The Action Proponent or the Contractor shall conduct standard soil and geotechnical surveys and investigations to ensure site stability. **C6**: The Construction Contractor shall maintain fill slopes no steeper than two to one (horizontal to vertical). Proposed cut slopes shall be determined by soil characteristics. The Contractor shall assess the shear strength characteristics of the particular soil or rock conditions present for safe allowable slope heights. **C7**: The Construction Contractor shall perform grading such that all identified compressible materials shall be removed and re-compacted, and fill soils shall be placed and compacted. **C8**: The Construction Contractor Proper shall conduct geotechnical studies before beginning excavation and grading to evaluate groundwater depth and shall use proper well construction methods (i.e., rotary drilling methods) to minimize impacts to groundwater. **C9**: The Construction Contractor shall ensure that all disturbed slopes or other graded features are properly stabilized. The construction shall be phased to minimize disturbed ground, exposed area, and sediment runoff/fugitive dust potential. **C10**: If contaminated soils are encountered, they shall be tested, used on site or disposed of within a Class I hazardous waste landfill, or disposed of in the lined portion of a Regional Water Quality Control Board-certified municipal landfill. **C11**: Limit Disturbance Area – Project access shall be limited to existing access roads and project footprint, and will focus on previously disturbed areas to the extent feasible. The boundaries of all areas to be disturbed shall be clearly marked with stakes and flagging prior to construction activities. Crushing/removal of perennial, native vegetation in work areas shall be avoided to the maximum extent practicable, and only after pre-construction surveys for desert tortoise. Spoils and topsoil shall be stockpiled in either disturbed areas lacking native vegetation or areas that do not contain special-status plant species or sensitive vegetation communities. Parking areas and staging areas shall also be marked and shall be located in previously disturbed areas without native vegetation or special-status species habitat (such as along access roads). **C83**: The action Proponent shall ensure any flowing or flushing of fire hydrants is performed with the use of a diffuser to reduce erosion of surrounding soils.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

RESOURCE: Biological Resources	
No-Action Alternative	***Proposed Action****
Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to baseline biological resources. Therefore, implementation of the No-Action Alternative would not significantly impact biological resources.	Smoke tree woodland is the only sensitive vegetation alliance present and, at most, 1.68 acres would be removed by construction. This is a small fraction of the total acreage of smoke tree present throughout the Combat Center (approximately 9,978 acres), and this vegetation alliance is broad ranging throughout washes in the deserts of Southern California. Therefore, implementation of Alternative 1 would not significantly impact vegetation alliances or other cover types. There is the potential for direct impacts to two non-federally listed rare plants, Utah vine milkweed and jackass clover, during construction activities. The non-federally listed rare plants would be avoided to the greatest extent feasible. Permanent direct and indirect impacts would occur to desert tortoises through implementation of the project, including both construction and operations. In total, seven to seventeen desert tortoises may occur in the Proposed Action area (project impact area plus 100-foot buffer). In an effort to minimize potential impacts to desert tortoise during construction, maintenance, and operation phases, the conservation measures of MCAGCC Biological Opinion will be applied. These measures will include, among others requiring implementation, pre-construction clearance surveys being performed by USFWS Authorized Biologists prior to grading or clearing during construction or operations, desert tortoise awareness briefings for all construction and maintenance personnel, and installing and maintaining permanent desert tortoise exclusion fence at the project perimeter fence of the evaporation ponds; temporary exclusion fence will be installed for the construction of the plant and wells. Clearance surveys would be conducted to remove any desert tortoise from inside the fencing and place them in adjacent habitat outside of the fencing. Any potential desert tortoise burrows within the project footprint would be scoped to ensure burrows are not occupied before they are collapsed. A security fence would be installed around the proposed water treatment plant to inhibit wildlife from accessing the proposed evaporation ponds. With implementation of the above-mentioned measures, as those listed below, impacts associated with implementation, operation, and maintenance of the Water Treatment Plant under Alternative 1 would not significantly impact the species. Non-federally listed rare wildlife species may be directly impacted through the loss of habitat and potentially through trampling or crushing from project construction. Indirect impacts may occur through an increase in nighttime lighting (from permanent security lights), an increase in predation (from increased perch availability from project fencing and infrastructure, and from evaporation ponds that provide water and attract predatory species). Some of the ponds may contain reverse osmosis concentrated reject. Because of the potential impacts to birds, efforts would be made to prevent or minimize effects to avian species. An avian deterrent system would be employed at the evaporation ponds to prevent/minimize wildlife access to the ponds. As an additional precaution, anti-perching devices would be installed on power poles around the evaporation ponds and facilities to limit/minimize avian use of these poles for perching, thereby minimizing use of the area by avian species in general.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

RESOURCE: Biological Resources	
No-Action Alternative	***Proposed Action****
	To reduce migratory bird impacts, pre-construction nest clearance surveys would be conducted for nesting birds (including burrowing owls), to identify any potential nests that need to be avoided. Biological monitoring would be conducted throughout construction to conduct clearance sweeps and ensure burrowing owls are not present within the project area. Implementation of Alternative 1 along with the minimization, mitigation, and monitoring measures listed below would not significantly impact non-federally listed rare wildlife. **P2**: The Action Proponent and the Contractor shall engage MCAGCC Environmental Affairs for scheduling surveys and initial screening of Authorized Biologists for pre-construction clearance surveys and construction monitoring. Authorized Biologists for desert tortoise surveys and monitoring must be approved first by MCAGCC Environmental Affairs, who will request the USFWS review at least thirty days prior to survey or monitor work. Surveys will follow the *Desert Tortoise Field Manual* (2009) or more recent guidance, include pre-construction clearance surveys for project plant (including exclusion fence installation), well site, water transmission line, utilities and roadwork, and will be conducted immediately prior to any construction activities related to the Project Action. **P3**: Prior to the onset of construction, the Action Proponent will appoint an official representative to oversee compliance with all protective measures, including tortoise awareness briefs, for the desert tortoise during construction, maintenance, and operation of the water treatment plant, water wells, and infrastructure improvements. This person will receive and investigate reports of non-compliance, will have the authority to stop all activities that may violate these measures, and will notify MCAGCC Environmental Affairs immediately of non-compliance or take of desert tortoise. **P4**: The Action Proponent shall coordinate with Environmental Affairs to implement a Desert Tortoise Education Program specific to the new water treatment plant, water wells, and infrastructure improvements for civilian personnel that work on the Combat Center during the construction and operation phase. All personnel shall go through the education program prior to construction activities and any associated activities that may affect desert tortoises. The desert tortoise education program will also assist in ensuring that no trash or roadkill will be made available that might attract desert tortoise predators, such as the common raven. **P5**: Environmental Affairs should work with the Action Proponent and contractor on the raven plan, from selection of appropriate avian deterrent technology to implementation and monitoring in order to minimize raven effects to desert tortoise. This plan will address ways in which the new evaporation ponds and human presence may increase common raven numbers and how their effects on desert tortoise within the Project Area will be minimized through monitoring and management. The plan shall include methods for monitoring common ravens, measures to implement to deter common ravens including hazing, egg oiling, and adaptive management measures. The plan shall specify design features to be implemented to deter nesting and perching common ravens in the Project Area, which may include physical bird deterrents such as, but not limited to, bird spikes, Bird-B-Gones, WhirlyBirds, and other anti-perching devices. **P6**: The Construction Contractor shall develop an Environmental Protection Plan that includes the requirements of the EA and the existing Biological Opinions.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

RESOURCE: Biological Resources	
No-Action Alternative	***Proposed Action****
	D1: To comply with the MBTA and the Bald and Golden Eagle Protection Act, project design and any aboveground utility upgrades shall incorporate raptor protection measures, as applicable. **D2**: An avian deterrent system would be employed at the evaporation ponds to prevent/minimize wildlife access to the ponds. While the exact design is to be determined, the deterrent system may involve active detection and deterrence (noise or lights) as well as anti-perching devices. **C11**: Limit Disturbance Area – Project access shall be limited to existing access roads and project footprint, and will focus on previously disturbed areas to the extent feasible. The boundaries of all areas to be disturbed shall be clearly marked with stakes and flagging prior to construction activities. Crushing/removal of perennial, native vegetation in work areas shall be avoided to the maximum extent practicable, and only after pre-construction surveys for desert tortoise. Spoils and topsoil shall be stockpiled in either disturbed areas lacking native vegetation or areas that do not contain special-status plant species or sensitive vegetation communities. Parking areas and staging areas shall also be marked and shall be located in previously disturbed areas without native vegetation or special-status species habitat (such as along access roads). **C12**: Qualified Botanist: A qualified botanist is defined as a botanist who has been authorized by the Navy to conduct surveys, monitoring, or relocation/salvage activities for special-status plant species. A qualified botanist can also be a qualified biologist by satisfying the appropriate requirements. **C13**: Qualified Biologist: A qualified biologist is defined as a wildlife biologist who has been approved by the Navy to conduct surveys, monitoring, or relocation activities for nesting birds and other special-status wildlife species. For all field efforts involving desert tortoise (i.e. species specific surveys and monitoring), a qualified biologist will work under the direct supervision of an Authorized Biologist (defined under C17). A qualified biologist is not authorized to handle desert tortoise. A qualified biologist can also be a qualified botanist by satisfying appropriate requirements. **C14**: Special-status plant species: Preconstruction surveys shall be conducted within the ROI. For non-listed special-status species, if work is scheduled to be conducted within the appropriate blooming period for rare annual plants or habitat is present for special-status plant species, then a survey shall be conducted seven to fourteen days prior to the start of project construction. All special-status plants detected within the ROI shall be flagged or marked by the qualified botanist in a highly visible manner to be avoided to the greatest extent possible. The botanist shall flag Joshua trees identified within the project footprint, but not in the immediate work area, to avoid. Any Joshua trees that are within the area of ground disturbance shall be excavated and moved to an area of similar elevation and soil type, and replanted in the same orientation as they were originally facing. **C15**: Vegetation Alliances: Impacts to plants within sensitive vegetation communities shall be minimized to the greatest extent feasible during construction. Care shall be taken to not cause root erosion (through grading or blading) or damage to sensitive vegetation community plant root systems. If necessary, a qualified biologist or botanist shall have flagged ahead of time (during preconstruction surveys for special-status plant species) any particularly sensitive areas to be avoided. Additionally, a qualified biologist or botanist may be present during construction to help direct crews where to drive and stage vehicles to minimize impacts to sensitive vegetation communities to the greatest extent feasible.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

RESOURCE: Biological Resources	
No-Action Alternative	***Proposed Action****
	C16: Non-federally listed rare plants: Special-status plant species within the ROI shall be marked via flagging, stakes, or other obvious means to be avoided during construction to the greatest extent feasible. If temporary grading of a previously undisturbed area is required (for example to level out sections of an area for temporary equipment staging), salvage of topsoil from the area shall be conducted in the undisturbed area prior to any grading. This soil shall be stockpiled and reapplied to the affected area after construction in the area has ceased. **C17**: Authorized Biologist: When requesting authorization of biologists to handle desert tortoises (hereafter referred to as Authorized Biologist), the Action Proponent will submit the credentials to the MCAGCC Environmental Affairs for review. Credentials must be submitted on USFWS Authorized Biologist Qualification Forms. Environmental Affairs will submit acceptable credentials, at least thirty days prior to the field need for the Authorized Biologist, to the USFWS for final review and approval. For authorization of specialized handling activities (e.g., transmitter placement or health assessments), the Action Proponent will clearly define activities for which it is requesting authorization and provide credentials that are specific to those activities. These Authorized Biologists (i.e., a biologist authorized by the USFWS) will be on site at all times during construction to monitor and relocate desert tortoises if necessary and will supervise qualified biologists (defined under C13) assisting with desert tortoise field efforts (i.e. species specific surveys and monitoring) at all times. **C18**: In areas known to support desert tortoises, the Action Proponent and the Contractor shall install temporary desert tortoise exclusion fencing (U.S. Fish and Wildlife Service, 2009) and exclusion gates around work sites and Authorized Biologists and qualified biologists (supervised by Authorized Biologists) will monitor during active construction. Fence material should consist of one-inch horizontal by two-inch vertical, galvanized welded wire, thirty-six inches in width, and five-to-six-foot steel T-posts should be used for fence construction. T-posts should be driven approximately twenty-four inches below the ground surface and spaced approximately ten feet apart with fencing material buried a minimum of twelve inches below the ground surface, leaving twenty-two to twenty-four inches above the ground. Distances between T-posts should not be more than ten feet apart. In situations where burying the fence is not practical due to substrate that cannot be dug, the fence material should be bent at a ninety-degree angle to produce a lower section approximately fourteen inches wide, which will be placed parallel to, and in direct contact with, the ground surface. Soil and cobble should then be placed on top of the lower, bent section of fence material (U.S. Fish and Wildlife Service, 2009). Desert tortoise-proof gates shall be installed to allow construction access while preventing desert tortoise from entering the fenced area. **C19**: The Action Proponent shall ensure that pre-construction clearance surveys are conducted for desert tortoises prior to land and vegetation clearing for construction of the new water treatment plant, water wells, water transmission lines, utilities, and infrastructure improvements (including Roadwork). The Action Proponent shall ensure that surveys are conducted for the desert tortoise in accordance with *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) and the Biological Opinions (U.S. Fish and Wildlife Service 2002, 2017), and reported to Environmental Affairs.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

RESOURCE: Biological Resources	
No-Action Alternative	***Proposed Action****
	C20: During pre-construction clearance surveys, Authorized Biologists and qualified biologists working under their direct supervision (hereafter "biologists") will inspect desert tortoise and mammal burrows for desert tortoises. If occupied burrows (hereafter "active") are found, the biologists will flag and avoid all burrows until further action is approved by Environmental Affairs. When marking and flagging burrows, biologists will follow the guidance in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009). **C21**: During clearance surveys, the biologists will only confirm a burrow as inactive if close inspection can locate all interior edges of the burrow and the end is clearly visible (and there is no plug in the burrow), such that any hidden chambers are not missed. All burrows encountered will be inspected with the use of mirrors, flashlights, and fiber optic cameras when necessary. **C22**: During clearance surveys, if an inactive burrow is near the active construction site but in no danger of disturbance, the biologists will block the burrow entrance with rocks to prevent future use of the burrow and flag it for avoidance. After completion of construction activities, the biologists will remove materials used to block and flag the burrow. The Action Proponent or Contractor will excavate all inactive burrows that construction activities are likely to disturb. The Action Proponent and Contractor will follow the guidance provided in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) when blocking, marking, and collapsing all burrows. **C23**: If construction activities cannot avoid an active burrow, an Authorized Biologist will excavate the burrow according to the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009). Authorized Biologists shall relocate all desert tortoises removed from active burrows to the nearest unoccupied natural burrow or an artificially constructed burrow, or place it under a shrub if it can be released within specified temperature limits (U.S. Fish and Wildlife Service, 2009). The biologists on site will ensure that further construction activities do not disrupt the release location. **C24**: The construction phase will require biological monitoring by an Authorized Biologist. The Authorized Biologist will work with the construction supervisor to minimize disturbance. The Action Proponent and Contractor will ensure that an adequate number of qualified biologists, under direct supervision of at least one Authorized Biologist, are present to monitor all aspects of the activities that have the potential to injure or kill desert tortoises (construction or maintenance of plant, evaporation ponds, wells, water lines and utilities, plus the improvements of access roads). Authorized Biologists and qualified biologists will have the authority to halt construction activities if they locate a desert tortoise in the construction area. The Action Proponent will cease all construction activity if they identify a desert tortoise within a construction area following initial clearance surveys. Construction activities will not resume until an Authorized Biologist has marked the desert tortoise and moved it to a safe location. All tortoise observations and movements are to be reported to Environmental Affairs daily, and take shall be reported immediately to Environmental Affairs. **C25**: The Action Proponent will ensure that only Authorized Biologists handle desert tortoises or their eggs except in circumstances where a desert tortoise is in immediate danger of injury and mortality. Use of Authorized Biologists and qualified biologists will be in accordance with the most recent USFWS guidance (U.S. Fish and Wildlife Service 2008, 2017). The Action Proponent will ensure that biologists do not perform specialized handling activities (e.g., transmitter placement, health assessments, or blood collection) for which they are not specifically authorized by the USFWS.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

RESOURCE: Biological Resources	
No-Action Alternative	***Proposed Action****
	C26: If handling of desert tortoise and their eggs is necessary during construction, Authorized Biologists will comply with the protocols outlined in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) unless otherwise authorized by Environmental Affairs. When performing tasks where tools and equipment may come in contact with desert tortoises, the Action Proponent will ensure that Authorized Biologists disinfect all tools via USFWS disease prevention protocols (U.S. Fish and Wildlife Service, 2013), or most recent USFWS guidance. **C27**: The Action Proponent will ensure that if desert tortoises must be handled, it will only be done so when air temperature, measured at two inches above the ground (shaded bulb), does not exceed 95°F during the handling session. If air temperature exceeds 95°F during handling or processing, desert tortoises will be shaded in an environment where the ambient air temperatures do not exceed 91°F. Authorized Biologists will not release desert tortoises until the air temperature at the release site has declined to below 95°F and is expected to remain below 95°F for the remainder of that day. **C28**: The Action Proponent will ensure that desert tortoises that show clinical signs of disease will not be translocated or otherwise moved. If the Authorized Biologist or Contractor locate a desert tortoise that must be moved, and it has signs of upper respiratory tract disease, they will quarantine this individual and contact Environmental Affairs to determine appropriate disposition of the animal. **C29**: The Action Proponent will ensure that construction personnel immediately report to an Authorized Biologist any desert tortoises that are within or immediately adjacent to construction activities where the desert tortoise may be in harm's way. **C30**: During construction in areas that are not fenced with desert tortoise exclusion fencing, an Authorized Biologist or qualified biologists under direct Authorized Biologist supervision will check open trenches at least two times a day, in the morning and evening, throughout the duration of construction. If midday temperatures are likely to be above 95°F, one of these checks will occur one to two hours prior to the forecasted high temperature. The Action Proponent will leave open trenches only if they are temporarily fenced (exclusion fence) or covered to exclude desert tortoises. If a desert tortoise is found in an open trench, construction will halt and an Authorized Biologist will be contacted immediately to move the desert tortoise to a safe location. Biologists and contractors will inspect open trenches for desert tortoises prior to filling. **C31**: During construction and operation in areas that are not fenced with desert tortoise exclusion fencing, Authorized Biologists, qualified biologists, and construction crews will check under parked vehicles prior to equipment and vehicle mobilization to ensure that desert tortoises have not sought shade beneath vehicles. If a desert tortoise is found under a vehicle, the vehicle must stay parked until the Authorized Biologist has moved the desert tortoise to a safe location. If an Authorized Biologist is not on-site and a desert tortoise is found under a vehicle, the driver will need to wait until Environmental Affairs moves the tortoise.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

RESOURCE: Biological Resources	
No-Action Alternative	***Proposed Action****
	C32: If construction activities occur during the recognized avian breeding season (generally February 1 through September 30), construction shall occur in accordance with the MBTA to avoid impacts to nesting migratory birds potentially occurring within the project area. Specifically, a contracted qualified biologist shall check the proposed project area for nests (in trees [including tree cavities], shrubs, and on the ground) before implementing construction activities. If the biologist finds an active nest (or nest cavity), construction workers shall not disturb the nest or adjacent areas until the biologist determines the nest is no longer in use. An appropriately sized non-disturbance buffer will be placed around the nest until the biologist determines that young have successfully fledged and are no longer dependent upon the nest. **C33**: Biological monitoring will evaluate the presence of common ravens during construction and operation and shall follow the management recommendations outlined in the Raven Monitoring, Management, and Control Plan. If common ravens are identified perching, roosting, or nesting on building materials, equipment, waste piles, or other construction debris, the biologist may deploy hazing or other management techniques to discourage use. **C34**: During construction activities, specifically grading, there will be potential for animals to be unearthed, providing a food subsidy for scavengers and thereby resulting in increased attraction of common ravens to the project footprint. Daily monitoring of the construction site as well as access roads will be conducted to expedite proper disposal of food subsidies. Biologists assisting with monitoring efforts will be contacted immediately if any roadkill is detected by any personnel, and a biologist shall remove it immediately unless it is a desert tortoise. If the roadkill is a desert tortoise, construction shall halt until Environmental Affairs investigates the site and authorizes construction to resume. **C35**: Nesting birds: If construction occurs during the bird breeding season (generally February 1 through September 30), surveys shall be conducted no more than three days prior to the start of construction to determine if active nest sites for any avian species protected under the federal MBTA occur within the ROI. If work is conducted outside of this time frame, then no preconstruction surveys are necessary. If an active nest (defined as a bird building a nest, sitting on a nest, carrying food to young, etc.) is found, then the following buffers may apply: 500 feet for raptors and 300 feet for all other bird species. **C36**: Burrowing owl: Surveys shall be conducted within the ROI seven to fourteen days prior to the start of Project implementation, regardless of the time of year. If surveys are conducted during the nesting season (February 1 through September 30) and burrowing owls are determined to be nesting on or within the 100-foot buffer, an appropriate buffer (500 feet, or as MBTA updates indicate) shall be provided to the burrowing owl nest. If a buffer cannot be easily marked or maintained, such as (1) when flagging the perimeter of the buffer is not feasible (no vegetation and hard ground); or (2) when a burrow is in the immediate vicinity of a disturbance area that cannot be realigned, such as an established access route like a main supply route, then the active burrow within the project footprint should be staked with a wooden three-to-four-foot stake tied at the top with bright flagging. Project construction shall not be permitted within the buffer until the young have fledged and left the burrow, or a qualified biologist is present and able to determine that the Project activity shall not harm any burrowing owls. If surveys are conducted during the nonbreeding season, and a burrowing owl is detected, a buffer shall be placed around the occupied burrow and the Navy shall be contacted to determine if the owl can be passively relocated via a one-way door. A biologist will be present throughout construction to ensure impacts to burrowing owls are minimized and the species does not occupy the project footprint.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

RESOURCE: Biological Resources	
No-Action Alternative	***Proposed Action****
	C37: Weed Management – The purpose of weed management is to prevent the introduction of any new weeds and the spread of existing weeds as a result of project construction. To prevent the spread of weeds through vehicular sources, Trackclean™ or other methods of vehicle cleaning shall be used for vehicles entering and exiting the construction area. Project vehicles shall be cleaned at a commercial facility prior to transport to the project. If needed, only weed-free straw, hay bales, and seeds for erosion control and sediment barriers shall be used. **C38**: Avoid Wildlife Pitfalls and Entrapment – If located outside of desert tortoise exclusion fencing, all trenches, pipes, and culverts shall be inspected at the end of each work day to ensure all potential but empty wildlife pitfalls have been backfilled, sloped at a three to one ratio at the ends to provide wildlife escape ramps, or completely covered to prevent wildlife access. Such pitfalls should be inspected mid- to late-morning for desert tortoises or other wildlife to avoid their take by overheating. Should a desert tortoise, migratory bird, or any special-status species become trapped, an Authorized Biologist (for tortoises) or a qualified biologist (other species) shall remove and relocate the animal. All trenches, pits, or other excavations shall be inspected for desert tortoise, and any special-status species by an Authorized Biologist or qualified biologist (dependent on species observed) prior to filling. Both ends of all pipes and culverts stored within desert tortoise habitat shall be capped to prevent entry by burrowing owl, desert kit fox, desert tortoise, or herpetofauna. **C39**: Desert kit fox and other special-status mammal species: Surveys shall be conducted within the ROI seven to fourteen days prior to the start of construction. Prior to construction, potential desert kit fox burrows within the ROI shall be mapped as part of preconstruction surveys, and qualified biologists shall determine whether the burrows are occupied (through the use of tracking stations or wildlife cameras). If occupied burrows are found within the project footprint, desert kit fox must be allowed to leave on their own, but if this is not possible, they must be passively relocated (through one-way doors) out of the burrows and the burrows collapsed. Passive relocation cannot occur while young are in the burrow and still dependent upon their parents, and must be avoided from March 1 through August 31. **PC3**: Due to the long-term nature of the Project, a Desert Tortoise Education Program shall be required for all personnel entering the training area, such as construction, operation, and maintenance personnel, including those driving transport trucks for chemicals and waste removal. As part of the education program the Action Proponent will inform operations personnel of their responsibility to halt, stay at scene, and report any form of injury or mortality of desert tortoises to Environmental Affairs. **PC4**: The Raven Monitoring, Management, and Control Plan will be continued in order to monitor and minimize raven effects to desert tortoise, and any adaptive management measures will be implemented via Public Works Division (PWD) and EA cooperation.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Cultural Resources	
No-Action Alternative	***Proposed Action****
Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to cultural resources. Therefore, implementation of the No-Action Alternative would not significantly impact cultural resources.	None of the twenty-three previously recorded sites identified during the records review are within the Alternative 1 area of potential effects, the closest being located approximately 575 feet to the south of the proposed road improvements. Although Alternative 1 would potentially affect the fourteen isolated finds within the Area of Potential Effect during construction, these isolated finds are evaluated as ineligible for the NRHP. Therefore, the implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below would not significantly impact cultural resources. **C40**: During ground disturbance activities, the Action Proponent and Contractor must stop work and immediately notify Environmental Affairs Natural Cultural Resources Officer if prehistoric artifacts, or clusters of more than ten historic-period artifacts that are known, or suspected to be, fifty years old or older, are discovered. Under no conditions of inadvertent discovery are crews allowed to resume work until cleared by Environmental Affairs Natural Cultural Resources Officer. **C41**: During ground disturbance activities, the Action Proponent and Contractor will apply the Combat Center's standard inadvertent discovery procedures and will use an archaeological monitor during any ground disturbing activities associated with the undertaking. Furthermore, the Action Proponent and Contractor will provide access to the site throughout the life of the construction project to any observer the Twenty-Nine Palms Band of Mission Indians wishes to send.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Water Resources	
No-Action Alternative	***Proposed Action****
Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to baseline water resources. Baseline water resources conditions would remain unchanged. Therefore, groundwater resources would continue to be depleted in the Surprise Springs Subbasin, and the Combat Center's primary drinking water supply would continue to degrade.	Construction activities associated with Alternative 1 could have the potential to impact water quality through the release of pollutants, such as sediment, soil stabilization residues, oil and grease, and trash and debris. Construction activities associated with Alternative 1 would be subject to applicable stormwater regulatory requirements and standards to avoid or minimize potential impacts of stormwater runoff, soil erosion, sedimentation, and contamination of stormwater runoff during construction. A SWPPP would be developed and implemented during construction that would identify the sources of pollutants that may affect the quality of stormwater and would include construction site best management practices to control erosion and minimize pollutants (e.g., sedimentation/siltation) in runoff. Increases in the amount of impervious surfaces could result in the accumulation, exposure, and transport of additional pollutants, such as sediment, oil and grease, metals, nutrients, and trash and debris. However, mandatory post-construction practices would be implemented and maintained to substantially reduce stormwater pollution and prevent significant water quality degradation as required by applicable regulations. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below would not significantly impact water resources. **P7**: The Action Proponent and Contractor shall ensure any project disturbing one or more acres of soil submits a SWPPP in accordance with the Combat Center Storm Water Management Plan. The Action Proponent and Contractor shall ensure Storm Water Management Plans are submitted to Environmental Affairs Water Resources Manager for review a minimum of twenty-one working days prior to the commencement of work. Environmental Affairs is solely responsible for reviewing, providing comments, and approving SWPPP and Erosion Control Plans (do not submit to the State). The Action Proponent and Contractor shall ensure work does not commence until the SWPPP or Erosion Control Plan has been approved by Environmental Affairs. The Environmental Affairs point of contact is Mr. Chris Elliott, at (760) 830-7883. **P8**: The Action Proponent shall develop a Drinking Water Monitoring Plan that discusses sampling methods and the method used to calculate maximum contaminant level, maximum required daily loads, and treatment techniques. Provide this report to PWD and Environmental Affairs for review and concurrence prior to implementation. **D3**: The new water treatment plant, water wells, and infrastructure improvements shall comply with Unified Facilities Criteria (UFC) Code 3-210-10N, Section 2-2.2 Maximum Extent Technically Feasible. The following Low Impact Development exemptions may be applicable: 1. Site has high groundwater table, underground facilities, or utilities. 2. Soil infiltration capacity is limited. 3. Site is too small to infiltrate significant volume. 4. Non-potable water demand (irrigation, toilets, wash-water, etc.) is too small to warrant water harvesting and reuse system. 5. These exemptions prohibit the use and implementation of Low Impact Development at this site. The Environmental Affairs point of contact is Mr. Chris Elliott, at (760) 830-7883.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Water Resources	
No-Action Alternative	***Proposed Action****
	D4: The new water treatment plant, water wells, and infrastructure improvements shall be designed so that they do not increase downstream flooding risks by substantially increasing peak runoff volumes. Designs shall consider, but not be limited to, increasing the size of local flood control sites serving the project area or by including infiltration strips, or porous paving in designs for parking areas or other sites. Detention/retention basins are not recommended due to possible attraction of desert tortoise predators such as the common raven. **D5**: The design shall incorporate drainage swale designs that direct stormwater runoff or irrigation runoff away from the structures or the top of the slopes to control drainage facilities. No stormwater shall be allowed to discharge over the top of a cut or fill slope. **D6**: The Action Proponent shall ensure that the new water wells are designed in accordance with the California Code of Regulations Title 22, Chapter 16, Article 4, Section 64560 and County of San Bernardino requirements. **D7**: The Action Proponent shall ensure that all facilities are planned in coordination with Environmental Affairs and include the necessary containment structures, wash stations, or water treatment facilities. Design shall meet UFC, Federal, State, Local & MCAGCC requirements. **D8**: The Designer of Record shall ensure that new and existing water mains are constructed in accordance with all applicable California's Code of Regulations Related to Drinking Water (Titles 17 and 22), including Sections 64570 and 64572, which among other things, requires maintaining a ten-foot horizontal separation from sewage lines. **D9**: The Designer of Record shall ensure that project-related activities are in accordance with the Combat Center's Energy Sustainability Strategy and all applicable Executive Orders for water conservation. **C8**: The Construction Contractor Proper shall conduct geotechnical studies before beginning excavation and grading to evaluate groundwater depth and shall use proper well construction methods (i.e., rotary drilling methods) to minimize impacts to groundwater. **C42**: The Action Proponent and Contractor shall ensure that Facility Engineering and Acquisition Division does not close any projects that have stormwater requirements or permits without written consent from Environmental Affairs Water Resources Manager. The Environmental Affairs point of contact is Mr. Chris Elliott at (760) 830-7883. **C43**: The Action Proponent and Contractor shall ensure that the Contractor adheres to installation's policies on irrigation and water conservation measures. The Action Proponent and Contractor shall ensure the project adheres to Combat Center Bulletin 5090. **C44**: Minimize Standing Water – Water applied for dust abatement shall be the minimal amount needed to meet safety and air quality standards to avoid the formation of puddles, which may attract wildlife to the project. In particular, desert tortoises and other special-status wildlife species may be attracted to the project if water is sprayed onto the access roads and construction areas. Therefore, any water that is applied to roads and construction areas shall be the minimal amount necessary, and a qualified biologist shall be present after water application to ensure that no special-status wildlife species and their predators are attracted to the water. No standing water shall be permitted on the site. **C45**: Water from new wells will be sampled at least once prior to treatment and analyzed for volatile organic compounds.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Water Resources	
No-Action Alternative	***Proposed Action****
	C46: The Action Proponent and Contractor shall ensure that any storm water runoff from construction site is controlled/released to proper storm water channels and clear of any contaminates. SWPPP's Best Management Practices (BMPs) will be followed. **C47**: Action Proponent shall ensure that no water, waste stream, or other materials are discharged into storm channels without written pre-approval from the Environmental Affairs Water Resources Manager. **PC5**: The Action Proponent shall implement post-construction BMPs to reduce stormwater pollution and prevent water quality degradation as required by MCAGCC's Stormwater Management Plan.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Air Quality	
No-Action Alternative	***Proposed Action****
Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to baseline air quality. Therefore, implementation of the No-Action Alternative would not significantly impact air quality.	Best management practices would be employed to regulate fugitive dust emissions of particulate matter (PM_{10} and $PM_{2.5}$), including watering of unpaved roads and active grading sites three times per day, reducing vehicle speed to fifteen miles per hour on unpaved roads, suspending grading activities in the event that winds exceed twenty-five miles per hour, and replacing ground cover in graded areas. Construction emissions would not exceed *de minimis* levels. In addition, implementation of Alternative 1 would not produce greenhouse gases within the "Rule of Reason". Therefore, implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below would not significantly impact air quality. Emissions from the operation of the facility would not exceed *de minimis* or significance levels. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below would not significantly impact air quality. **C9**: The Construction Contractor shall ensure that all disturbed slopes or other graded features are properly stabilized. The construction shall be phased to minimize disturbed ground, exposed area, and sediment runoff/fugitive dust potential. **C48**: The Construction Contractor shall employ dust abatement measures to minimize fugitive dust emissions during construction. These measures may include watering or the application of a commercial polymer-based soil stabilizer product to the laydown and staging areas to semi-permanently eliminate dust emissions. The Construction Contractor shall obtain Environmental Affairs' approval prior to the use or application of commercial polymer-based soil stabilizer products. The Contractor will apply dust abatement measures in compliance with Mojave Desert Air Quality Management District (MDAQMD) Rule 403. To do so, the Contractor shall designate personnel to monitor the dust control program and to increase dust suppression measures (e.g., watering or application of polymer-based soil stabilizer), as necessary, to minimize the generation of dust. **C49**: The Action Proponent shall ensure that the Contractor ensures that fugitive dust from any transport, handling, construction, or storage activity does not remain visible in the atmosphere beyond the project or worksite footprint. The Action Proponent shall take every reasonable precaution to minimize fugitive dust emissions from wrecking, excavation, grading, clearing of land, and solid waste disposal operations. Mojave Desert Air Quality Management District Rule 403 applies. **C50**: The Action Proponent shall ensure that the Mojave Desert Air Quality Management District is notified if any rental registered equipment unit is used in this district for more than five days. California Air Resources Board Portable Equipment Registration Program Section 2459 of Article 5 (Title 13) of the California Code of Regulations applies. The Action Proponent or the owner/operator shall ensure that the district is notified via electronic mail, in writing, facsimile, or by telephone, within two working days of commencing operations. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480. **C51**: The Action Proponent shall ensure that the Contractor adheres to the emission limits for new engines, as per Title 17 California Code of Regulations Section 93115. If the generator is a non-tactical stationary or portable stand-by or prime engine, the following requirements apply: Tier 4, unless otherwise approved by the Mojave Desert Air Quality Management District, California Air Resources Board, or Environmental Affairs Air Resources Manager.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Air Quality	
No-Action Alternative	***Proposed Action****
	C52: The Action Proponent shall ensure that the Contractor ensures all paints, coatings, adhesives, and solvents use/applications follow the Mojave Desert Air Quality Management District's Usage of Solvent Rule 442, Architectural Coating Rule 1113, Metal Parts and Products Coating Operations Rule 1115, and the Automotive Coating Rule 1116 to limit the quantity of volatile organic compounds. A daily log shall be maintained of the volatile organic compounds used or emitted. The log shall contain at least the following: type of equipment for application, type of material, manufacturer of material, quantity of each coating, solvent used, and its volatile organic compounds content (volatile organic compounds must be in pounds per gallon or grams per liter). Records shall be submitted to the Environmental Affairs Air Resources Office. **C53**: The Action Proponent shall ensure non-tactical equipment with a manufacturer's maximum continuous rating of fifty brake horsepower or greater are required to be permitted by the Mojave Desert Air Quality Management District or registered in the California Air Resources Board Portable Equipment Registration Program. If the equipment will eventually be handed over to the government, all Mojave Desert Air Quality Management District permit applications shall be processed or approved through the Environmental Affairs Air Resources Manager. If Contractor owned or leased, all permits or Portable Equipment Registration Program registration stickers must be displayed on equipment and ensure compliance with all permit conditions. No equipment shall be placed into operation until Mojave Desert Air Quality Management District permits or California Air Resources Board Portable Equipment Registration Program registration stickers are obtained. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480. **C54**: The Action Proponent shall ensure that the Contractor ensures that the refrigerant being used in the air conditioning unit is a non-chlorofluorocarbon or hydrofluorochlorocarbon. The Action Proponent and Contractor shall take all necessary precautions (e.g., proper training, training certifications, and equipment) to ensure that no refrigerants are released to the atmosphere. In the event that refrigerants are released, the Contractor shall immediately notify Environmental Affairs Air Resources Manager of all refrigerant releases and estimated amount of release. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480. **C55**: The Action Proponent shall ensure that the Contractor provides the following information to Environmental Affairs Air Resources Manager to register the equipment on the Refrigerant Management Inventory prior to being placed into service: equipment specifications (type, manufacture, model, model year, and serial numbers), installation date, refrigerant type, refrigerant charge (pounds), leak detection device (if applicable), location description (to include building number and floor plan of refrigerant placement), and system function. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480. **C56**: All stockpiled material will use dust control measures (e.g., cover, hydroseed) and will be stored in a manner that shall prevent runoff in the event of overwatering of the site or a storm event.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Public Health and Safety	
No-Action Alternative	***Proposed Action****
Under the No-Action Alternative, the Proposed Action would not occur. Therefore, implementation of the No-Action Alternative would not significantly impact the baseline public health and safety conditions; however, the limited water supply of the Surprise Springs Subbasin would continue to be a health and safety concern.	Following construction activities, Alternative 1 would enhance public health and safety by ensuring a reliable potable water supply for the Combat Center. All hazardous and regulated wastes, materials, and substances generated during construction would be collected, characterized, labeled, stored, transported, and disposed of in accordance with applicable federal, state, and local laws and regulations as well as the installation's standard operating procedures. Additionally, all project-related construction activities would occur within the Combat Center on the Combat Center's Sandhill Training Area, which is generally not accessible to the public. Therefore, implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below would not significantly impact public health and safety. The reverse osmosis process would also generate a reject (or concentrate) stream. This reject stream would be disposed of in the evaporation ponds. Sandy soils have a high degree of permeation, which could allow a containment leak to travel deep underground into the strata; however, the evaporation ponds would be lined and equipped with leak prevention and detection equipment to minimize this risk. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below would not significantly impact public health and safety. **P9**: The Contractor shall complete a Construction and Demolition Plan prior to start of work and submitted to the Solid Waste Manager, Environmental Affairs via the Field and External Affairs Division. The plan will capture the Contractor's estimated tonnage of construction and demolition waste that would be recycled or disposed. **D10**: An area for the storage of hazardous waste shall be incorporated into the design documents. **C57**: The Contractor shall ensure that all construction personnel remain on the access roads analyzed herein when accessing the construction sites. **C58**: Vehicles shall be restricted to existing roads/paths, parking areas, and authorized construction areas. **C59**: The Action Proponent will post and enforce a twenty-mile-per-hour speed limit for Contractor and construction personnel on all roads within desert tortoise habitat. **C60**: No pets shall be permitted at any time within the construction area. **C61**: No holes shall be left exposed overnight or when the site is unattended. Any unattended holes must either be temporarily fenced or covered with plywood, sheet metal, or similar material. **C62**: In the event that hazardous materials are found at the work site, including but not limited to underground storage tanks, burn pits, or any contaminated soils, the Contractor shall immediately stop work and notify both the Combat Center's PWD and Environmental Affairs. **C63**: Implement structural and nonstructural programs (i.e., routine procedures or practices) to prohibit the storage of uncovered hazardous substances in outdoor areas.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Public Health and Safety	
No-Action Alternative	***Proposed Action****
	C64: The proposed project sites may be on an inactive military range. The Action Proponent shall ensure that construction, repair, or maintenance personnel receive initial unexploded ordnance and dud briefing by the Combat Center's Explosive Ordnance Disposal (EOD) Section prior to construction activities. If any munitions and explosives of concern are discovered during construction, repair, and or maintenance activity, the Action Proponent shall ensure operations are ceased and EOD is notified. EOD's point of contact number is (760) 830-7112. **C65**: Construction personnel shall remove all trash, especially food waste, from the site. To prevent attracting wildlife to the project site, all trash shall be contained in closed receptacles and removed on a regular basis to prevent it from overflowing. Trash bags shall not be stored in the open bed of pick-up trucks. **C66**: Permanent or temporary relocation of pesticides, herbicides, and other hazardous materials and wastes shall be done in a manner that complies with the Combat Center's Integrated Contingency and Operations Plans. **C67**: The Action Proponent and Contractor shall ensure that all portable toilets are staked or tied down to prevent spillage. Portable toilets may not be placed within twenty feet of any storm channel or natural wash. **C68**: The Action Proponent and Contractor shall ensure that all paints, solvents, and equipment used in painting are handled per MCAGCC's State General Industrial Storm Water Permit/SWPPP and are not washed out on the ground. **C69**: The Action Proponent and Contractor shall ensure that concrete washout containment is in place and is used. All dried concrete washout material shall be disposed of properly. Concrete washouts will not be dug into the ground. Concrete washouts will be built at/above grade per MCAGCC's SWPPP. **C70**: The Action Proponent and Contractor shall ensure that petroleum, oil, lubricants, and toxic/hazardous materials are stored and handled in accordance with federal, state, county, Department of Defense, Department of the Navy, Marine Corps, and MCAGCC's environmental and natural resources requirements. Combat Center Order 5090.5A pertains. Environmental Affairs point of contact is Mr. Mike Elliott at (760) 830-7695. **C71**: The Action Proponent shall ensure that Contractors operating aboard the installation for more than thirty days submit an Authorized Use List (AUL) containing a listing of all required hazardous materials for operations. The AUL will be submitted to the AUL Working Group Manager for review and approval prior to utilizing the hazardous materials aboard the installation. The point of contact is Mr. Keith Mohn at (760) 830-3746. **C72**: The Action Proponent shall ensure that all hazardous material releases are reported to the Environmental Affairs Abatement Section. Environmental Affairs point of contact is Mr. Thomas Connors at 760-401-9841 and can be reached twenty-four hours a day. All documentation regarding spill releases and notifications will be conducted by the Environmental Affairs Abatement Section. Action Proponent and Contractor will not make any notifications to external agencies. **C73**: The Action Proponent shall ensure that the Contractor uses a licensed hauler and temporary storage to have hazardous waste items manifested off-base. The Contractor shall coordinate the manifesting of hazardous waste with Environmental Affairs Hazardous Waste Management Section. Environmental Affairs point of contact is Mr. Pat Mills at (760) 830-5403.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Public Health and Safety	
No-Action Alternative	***Proposed Action****
	C74: Oil-based drilling muds and synthetic-based drilling muds would be recovered or recycled in accordance with federal, state, and local regulations. **C75**: Construction and Demolition Report will be completed upon completion of project submitted to the Solid Waste Manager, Environmental Affairs via the Field and External Affairs Division. The report will capture the Contractor's tonnage of construction and demolition waste that was recycled and or disposed.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Utilities	
No-Action Alternative	***Proposed Action****
Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to existing utilities. Therefore, implementation of the No-Action Alternative would not significantly impact utilities.	Implementation of Alternative 1 would provide potable water to the Combat Center that meets the federal and State's safe drinking water requirements, enhancing the Combat Center's potable water supply. Although there would be an increase in the electrical draw and sewage generation for the operations and maintenance of the treatment plant and water wells, these increases would be within the installation's existing grid system capacity and sewage disposal capacity. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below would not significantly impact utilities. **P10**: The Action Proponent or the Contractor shall verify that all existing utility services have adequate capacity. **P11**: The Action Proponent and Contractor shall ensure compliance with California Code of Regulations Title 23; Chapter 16 Section 2636; Design, Construction, Installation, Testing, and Monitoring Requirements for Piping and Section 2666; Requirements for Underground Piping. The Environmental Affairs point of contact is Mr. Joe Cleek, at (760) 830-8361 or joe.cleek@usmc.mil. **P12**: The Action Proponent shall submit this matrix with updated costs and a completed Minimization, Mitigation, and Monitoring Effectiveness Report to Environmental Affairs within thirty days of the Design Phase. **D11**: Lighting shall be designed to minimize upward light pollution, and shall be shielded to keep light away from adjacent natural habitat. **D12**: The Action Proponent shall consider sustainability in the design phase by promoting building energy conservation, efficiency, and management; and by promoting sustainable acquisition and procurement. This includes ensuring that all new construction includes the incorporation of climate-resilient design and management elements. As of May 2018, Executive Order 13834 directs Federal agencies to manage their buildings, vehicles, and overall operations to optimize energy and environmental performance, reduce waste, and cut costs. **D13**: The evaporation ponds shall be lined and equipped with leak prevention and detection equipment. **D14**: Stand-by or emergency generator tanks in remote areas shall have secondary containment systems and leak detection equipment. **D15**: Designs would comply with all applicable UFC, including, but not limited to, UFC 1-200-01 Department of Defense Building Code; UFC 3-230-01, Water Storage, Distribution, and Transmission; UFC 3-230-02, O&M: Water Supply Systems; UFC 3-240-13FN, Industrial Water Treatment Operation and Maintenance; UFC 3-250-09FA, Aggregate Surface Roads and Airfield Areas; UFC 3-310-04, Seismic Design for Buildings; and UFC 3-530-01, Design, Interior and Exterior Lighting Controls. **C76**: The Action Proponent and the Contractor shall place permanent signs promoting awareness of desert tortoises in key locations near the Project Area to encourage personnel not to stray off established access roads. **C77**: The Action Proponent and Contractor shall ensure any fire hydrant and backflow device installed or removed are reported to the PWD Cross Connection Control Manager for addition or updated to the Combat Center's inventory. Information reported shall include: Location, Make, Model Number, Size, and Serial Number. All fire hydrant and backflow installations shall comply with California Code of Regulations Title 17, Chapter 5 and MCAGCC, MAGTFTC Cross Connection Control Plan.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Utilities	
No-Action Alternative	***Proposed Action****
	C78: The Action Proponent and Contractor shall ensure any newly installed drinking water distribution reservoir or any distribution reservoir that has been taken out of service for repair or inspection shall be disinfected and sampled for bacteriological quality in accordance with California Code of Regulation Title 22, Chapter 15, Article 5, Section 64582. A copy of the bacteriological sampling results shall be submitted to Environmental Affairs Water Resources Manager for review and approval prior to the reservoir being placed into service. **C79**: The Action Sponsor and contractor shall ensure any new or repaired well, or a well that has been out of operation for more than three months, are sampled for bacteriological quality prior to use in accordance with California Code of Regulation Title 22, Article 5, Section 64583. A copy of bacteriological sampling results shall be submitted to Environmental Affairs Water Resources Manager for review and approval prior to the well being placed into service. **C80**: The Action Proponent and Contractor shall ensure new and existing water mains are constructed in accordance with the California Code of Regulations Title 22, Chapter 16, Article 4, Section 64572. Specifically, maintaining a ten foot horizontal separation from sewage lines. **C81**: The Action Proponent and Contractor will ensure any use of MCAGCC, MAGTFTC water supply is protected with a properly certified backflow preventer (double check). MCAGCC, MAGTFTC no longer approves the use of air gap(s). California Code of Regulations Title 17, Chapter 5, Article 2 Section 7605 outlines backflow testing and usage requirements. All backflows must be tested per California Code of Regulations Title 17, Chapter 5, Article 2, Section 7605, and the results reported to Environmental Affairs Water Resources Manager and MCAGCC, MAGTFTC Cross Connection Control manager prior to being placed into service. **C82**: The Action Proponent and Contractor shall ensure that plant material used is drought tolerant and irrigation is conducted with a water-wise approach. **C83**: The action Proponent shall ensure any flowing or flushing of fire hydrants is performed with the use of a diffuser to reduce erosion of surrounding soils. **C84**: Overhead electrical poles shall have avian protection designed and installed. **C85**: The Action Proponent and Contractor shall ensure the updated "As-Builts" are completed and submitted to PWD for any modifications to utilities. These changes shall be incorporated to geographic information systems as applicable. **C86**: Because stand-by generators are required, the Contractor would be required to obtain an Authority to Construct permit from the MDAQMD before the construction of the proposed Military Construction project. The application package must be reviewed and approved by the Environmental Affairs Air Resources Manager before being submitted to the MDAQMD. Contact Environmental Affairs for Application Package details. **C87**: The Action Proponent shall ensure that the Contractor ensures the aboveground storage tank system(s) are properly labeled and installed in accordance with National Fire Protection Association, California Fire Codes, and manufacturer's guidelines. All aboveground storage containment tanks shall have secondary containments and be in compliance with federal, state, and local regulations.

Table ES-1: Summary of Environmental Consequences with Implementation of the Proposed Action or No-Action Alternative (continued)

Resource: Utilities	
No-Action Alternative	***Proposed Action****
	C88: The construction Contractor shall document the area that has been permanently stabilized by concrete or asphalt after construction. In accordance with MDAQMD Regulation 14 (1400-1404), Environmental Affairs may elect to apply for and register Emission Reduction Credits for this area, to bank for future potential use at the Combat Center.

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CHAPTER 1. PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This Environmental Assessment (EA) has been prepared to evaluate potential environmental impacts associated with construction and operation of a new drinking water treatment plant and ancillary infrastructure improvements at the Marine Air Ground Task Force Training Command (MAGTFTC)/Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, California (herein referred to as the "Combat Center" or the "installation").

The United States (U.S.) Marine Corps (USMC) has prepared this EA in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [USC] sections 4321-4370h), Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), Department of the Navy procedures for implementing NEPA (32 CFR Part 775), and Marine Corps Order P5090.2A, Change 3, dated 26 August 2013, Environmental Compliance and Protection Manual.

Three alternatives are evaluated in this EA: Alternative 1 (Proposed Action), Alternative 2, and the No-Action Alternative. Alternative 1 is for the construction of a new drinking water treatment plant at the Combat Center, three new 1,000 gallon-per-minute water wells, and ancillary infrastructure improvements. Alternative 2 is similar to Alternative 1 but it would use a different water treatment process than Alternative 1. Under the No-Action Alternative, the Proposed Action would not be implemented and the Combat Center's current water system would continue to be utilized.

The Proposed Action is located at the Combat Center. The USMC has taken primary responsibility for preparing this EA and is the lead agency for the NEPA analysis as defined by 40 CFR section 1508.16.

1.2 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to ensure continued availability of safe, regulatory compliant potable water for the Marines, civilian personnel, and residents and to sustain the Combat Center's mission. The Combat Center has been reliant on a single groundwater source (Surprise Springs) to provide all potable water for over 60 years. This reliance is not sustainable and requires the use of an additional aquifer (Deadman) to reduce overdrafting of the Surprise Springs Aquifer. The water quality of the Deadman Aquifer does not meet California drinking water standards and Surprise Springs will continue to degrade in quality and availability over time, requiring the construction of a drinking water treatment facility.

1.3 PROJECT LOCATION

The Combat Center is located in the Mojave Desert, approximately 130 miles east of Los Angeles and fifty-four miles northeast of Palm Springs in San Bernardino County, California (Figure 1-1). The southern boundary of the installation is approximately six miles north of Highway 62, and the northern boundary is approximately two miles south of Interstate 40. The City of Twentynine Palms is adjacent to the southern boundary of the installation. The Combat Center is approximately 760,000 acres.

The Proposed Action would occur on land and along existing roads within the Combat Center's Sandhill Training Area, which includes Category 1 and 2 Special Use Areas. Category 1 Special Use Areas are restricted areas where digging, ground disturbance, bivouacking, off-highway vehicle use, and training that involve vehicle activity outside of a main supply route are prohibited. Category 2 Special Use Areas are sensitive areas where training may occur, but personnel are warned that these areas have sensitive natural resources, cultural resources, or utilities.

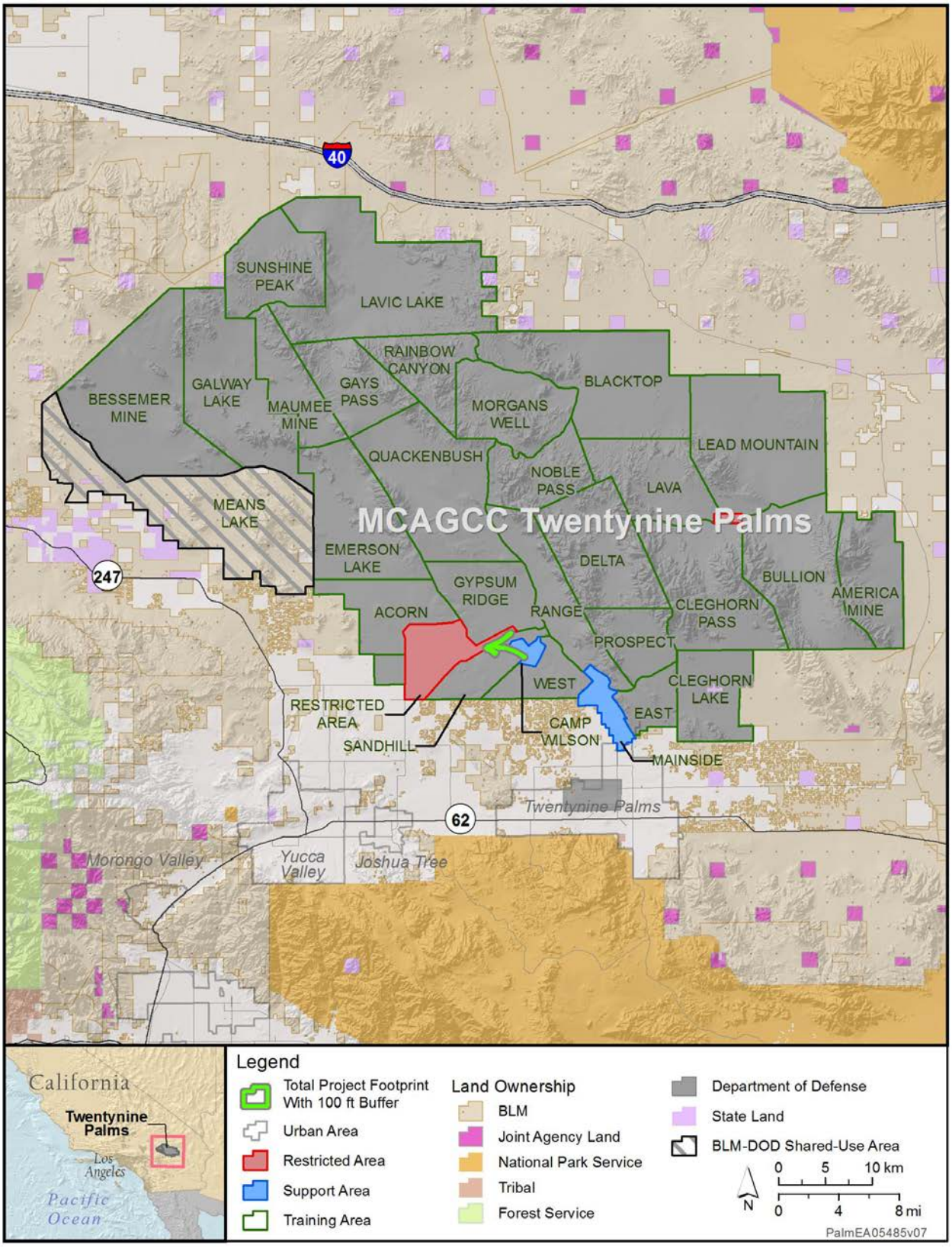

Figure 1-1: Project Vicinity Map

The location of the Proposed Action is currently being used as a corridor to access existing water wells. Existing water equalization tanks and water transmission lines exist within the Project Area. The equalization tanks are approximately seven miles northwest of Mainside and approximately 1.4 miles southwest of the USMC's Strategic Expeditionary Landing Field.

1.4 PUBLIC PARTICIPATION

As part of this EA and as described in Appendix A, the USMC provided the public with the opportunity to participate in this project by submitting comments on the adequacy and accuracy of the Public Draft EA. The public participation process commenced with publication of a Notice of Availability (NOA) for the Public Draft EA in the *Desert Star Weekly, Hi-Desert Star* and *The Desert Trail*. The Draft EA was available at the Twentynine Palms Branch Library, the Yucca Valley Branch County Library, and the Joshua Tree Public Library. It was also available online at the Combat Center's website at http://www.29palms.marines.mil/Staff/G4InstallationsandLogistics/EnvironmentalAffairs.aspx.

The Public Draft EA was available for public review and comment for thirty days (July 18th to Aug 17th 2018). Written comments were to be sent via mail to Mr. Benjamin Lawrence, Project Manager, Naval Facilities Engineering Command Southwest, Marine Corps Team, 937 North Harbor Drive, Building 1, 3rd Floor, San Diego, California 92132-0058, or via email to Mr. Lawrence at benjamin.t.lawrence@navy.mil.

Following the issuance of a decision document, a NOA for the Final EA will be published advising the public of USMC's findings and decision. This notice will be published in the *Desert Star Weekly, Hi-Desert Star* and *The Desert Trail.* Pending the results of this analysis, the decision document could be a Finding of No Significant Impact (FONSI) or a Notice of Intent to prepare an Environmental Impact Statement instead of a FONSI. The Final EA and FONSI (if appropriate) will be available to the public for review at the Twentynine Palms Branch Library, the Yucca Valley Branch County Library, and the Joshua Tree Public Library, as well as online at the Combat Center's website.

1.5 AGENCY CONSULTATIONS

The USMC consulted with the California State Historic Preservation Office and culturally affiliated Indian tribes under Section 106 of the National Historic Preservation Act (54 USC section 306108). Agency correspondence is provided in Appendix B.

CHAPTER 2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 SCREENING FACTORS

A range of reasonable alternatives was identified by evaluating the ability of each alternative to meet the purpose of and need for the Proposed Action and their ability to meet the following screening factors:

1. Ability to meet the Combat Center's mission
2. Ability to meet required potable water quality limits using a reliable treatment method
3. Ability to accommodate future water supplies if needed
4. Proximity and grade to existing water equalization tanks
5. Proximity to existing water lines, roads, and other utilities
6. Minimization of potential negative effects to the environment

The following alternatives are carried forward for further evaluation because these alternatives best met the purpose of and need for the Proposed Action and the screening factors: Alternative 1 (Proposed Action) and Alternative 2. Alternative 1 is for the construction of a new drinking water treatment plant at the Combat Center, three new 1,000-gallons-per-minute water wells, and ancillary infrastructure improvements. Alternative 2 is similar to Alternative 1, but it would use a different water treatment process than Alternative 1. The No-Action Alternative would not meet the purpose of or need for the Proposed Action or the screening factors but is being carried forward as a baseline from which to compare impacts. A number of other alternatives were considered but eliminated from detailed analysis as described further in Section 2.5 (Alternatives Considered but Eliminated from Detailed Analysis).

2.2 DESCRIPTION OF THE NO-ACTION ALTERNATIVE

Under the No-Action Alternative, neither the new drinking water treatment plant nor the three water wells would be constructed nor would ancillary improvements occur to existing roads or related infrastructure.

2.3 DESCRIPTION OF ALTERNATIVE 1 – BLEND ALL SOURCES FOR TOTAL REVERSE OSMOSIS TREATMENT (PROPOSED ACTION)

Alternative 1 is for the construction and operation of a new drinking water treatment plant and three new water wells within the Deadman Subbasin, and ancillary infrastructure improvements at the Combat Center (Figure 2-1). This alternative includes the construction of a system that treats and blends groundwater for potable drinking water from Surprise Springs and the Deadman Subbasin. Sustainable building requirements would be included in the design and construction of the project in accordance with federal laws and executive orders. It is anticipated that Alternative 1 would permanently impact approximately 69.25 acres (Table 2-1). Of that total disturbance, approximately twenty-one acres of actual ground disturbance are planned within the restricted area (Figure 2-1). The restricted area was set aside to protect both water and ecological resources; however, the installation's water needs now require the use of some of the area. All planning efforts will minimize the disturbance and resulting impacts to this ecologically sensitive area. The overall timeline to construct the plant and the water wells would be slightly over two years.

Under Alternative 1, the Combat Center would deduct this project’s affected acreage from its annual Biological Opinion allotment of 150 acres.

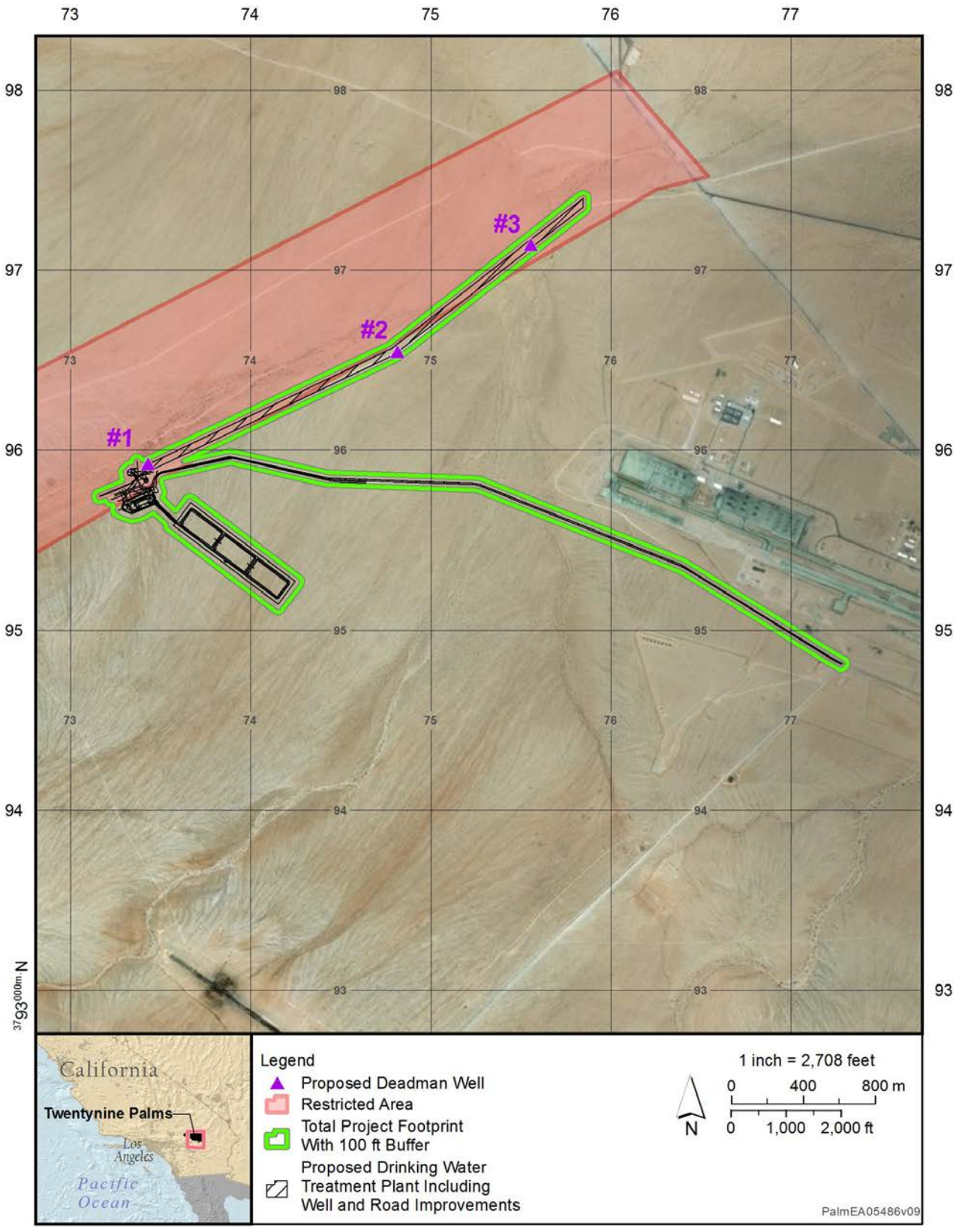

Figure 2-1: Conceptual Location of New Drinking Water Treatment Plant, Water Wells, and Roadwork
(staging area not shown, but would be within proposed total project footprint with a 100-foot buffer)

2.3.1 New Drinking Water Treatment Plant

Alternative 1 includes the construction of a new drinking water treatment plant within the Combat Center's Sandhill Training Area. This plant would treat groundwater from the Surprise Springs Subbasin and/or groundwater from the Deadman Subbasin.

Table 2-1: Estimate of the Permanent Impact Areas for Alternative 1

Activity	Permanent Impact Area
Construct a New Drinking Water Treatment Plant	34.92 acres
Improve Existing Supply Route	7.36 acres
Improve Existing Road for Well Sites 1, 2, and 3	25.97 acres
Construction Staging Area[1]	1 acre
Totals	69.25 acres

[1]The exact location of the staging area has not been determined, other than it will be contained within the project footprint. At this time, it is anticipated that it would be located within the 100-foot buffer in the vicinity of Well #1, where ample space is available for this project component.

Figure 2-2 and Figure 2-3 provide the conceptual layout of the plant, which would be located across the road from the existing equalization tanks. The plant would be gated and enclosed by a chain-link perimeter fence that would be seven feet high with a one-foot outrigger (three-strand barbwire). The perimeter fence would meet the desert tortoise exclusion fence standards set forth in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) and is discussed in Section 4.2.2.3 (Federally Listed Wildlife). All exterior and interior lighting at the plant would comply with the latest version of Unified Facilities Criteria 3-530-01.

The plant would include a main facility with administrative support capabilities as well as chemical storage and delivery areas (Figure 2-3). The plant would also include concrete sidewalks and a dirt or aggregate composite road within the proposed perimeter fence. An asphalt parking area that could accommodate up to four vehicles at one time would also be constructed at the main facility.

The main facility would include storage capabilities for the following chemicals: reverse osmosis antiscalant, sodium hydroxide, carbon dioxide, calcium chloride, sulfuric acid, and hydrofluosilicic acid. A 1-million gallon source water tank and up to three 360-foot-by-730-foot evaporation ponds would be located adjacent to the main facility. Each evaporation pond would be lined and would be adjusted to follow the existing topography (Figure 2-2). A dirt road would be constructed around the evaporation ponds and within the main facility.

The main facility would have native landscaping and would feature permanent erosion controls and drainage ditches that would flow into an unlined stormwater management basin. The basin would be located adjacent to the main facility but outside the proposed perimeter fence. The main facility would be graded to allow stormwater to drain away from the structures and into the basin.

2.3.1.1 Water Transmission Lines

Alternative 1 includes the installation of eight-inch potable water transmission lines. The proposed water lines would (1) connect existing transmission lines to the new drinking water treatment plant, (2) connect the new wells to the plant, and (3) connect treated water from the plant to the existing equalization tanks. Water transmission lines would be buried within the proposed impact areas for the new drinking water treatment plant, water wells (Section 2.3.2, Three New Water Wells), and approach roads (Section 2.3.3, Roadwork), as well as around the existing equalization tanks. In addition, approximately 2,359 feet of

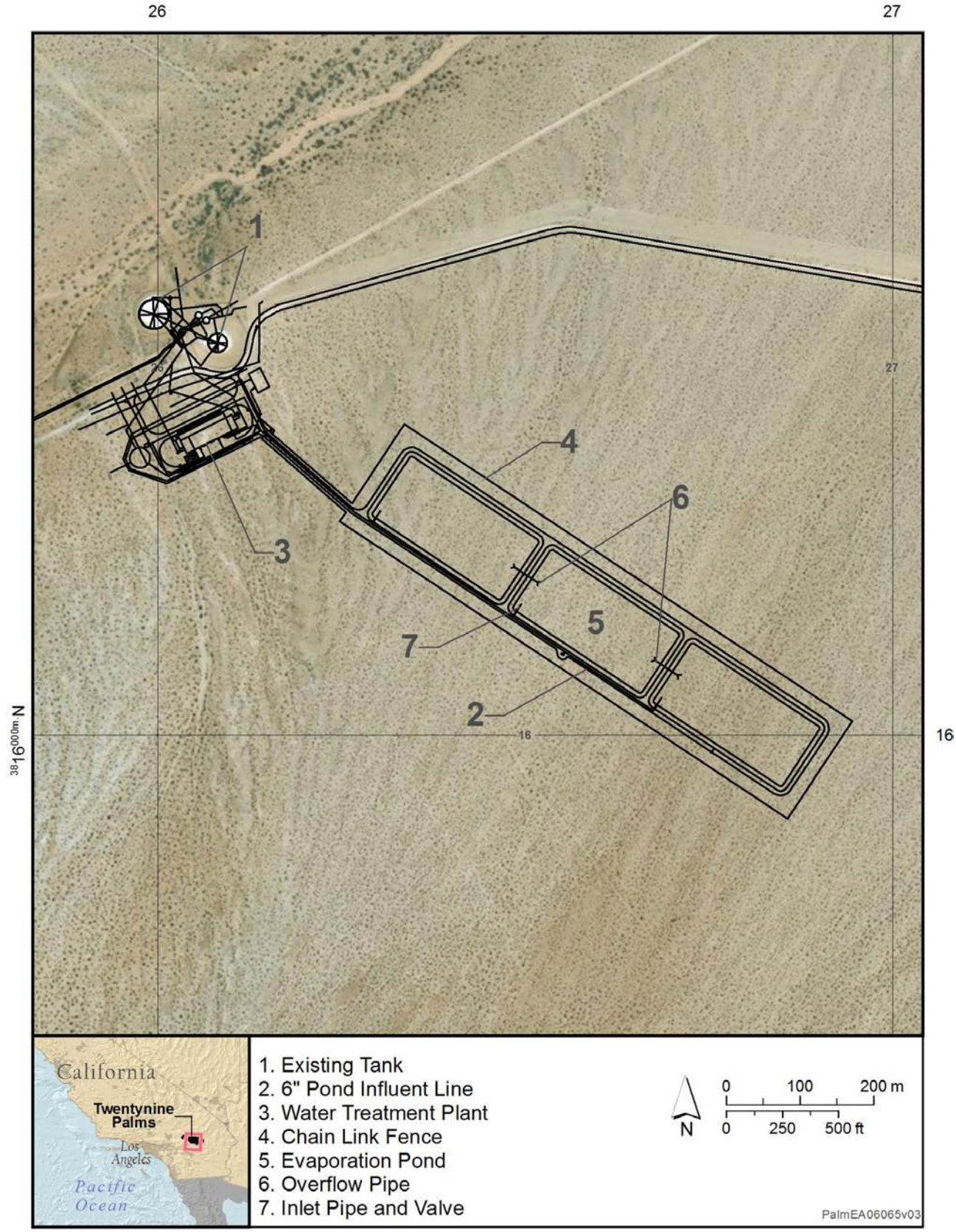

Figure 2-2: Notional Site Plan for the New Drinking Water Treatment Plant

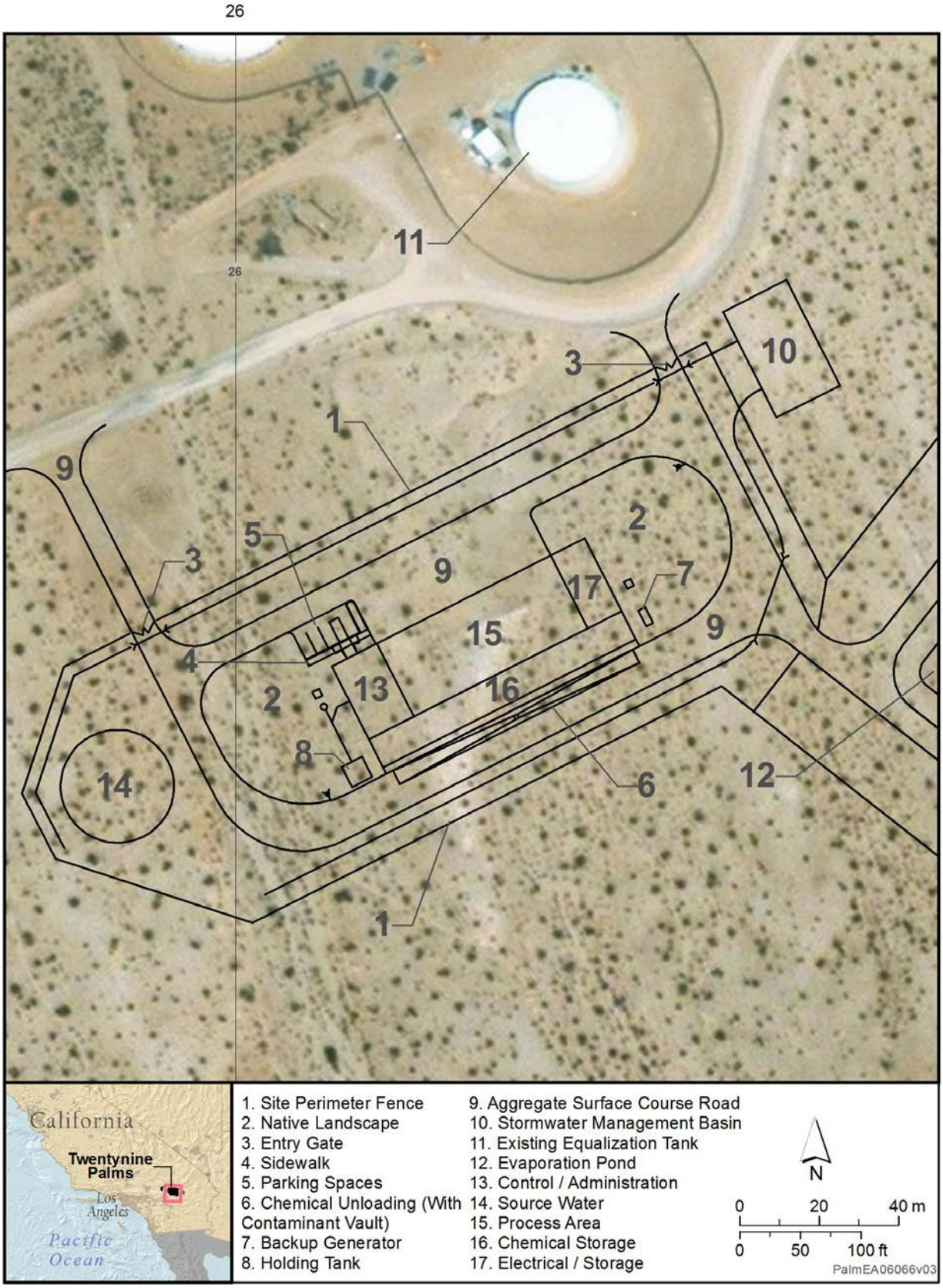

Figure 2-3: Notional Site Plan for the Main Facility

pipeline would be installed along the northwest edge of the project area (Figure 2-1). This line would tap into existing water lines.

2.3.1.2 Utilities

Utilities at the new drinking water treatment plant would include electrical, telecommunications, and a sanitary waste disposal system. Electrical utilities include primary and secondary distribution systems, telecommunications information systems infrastructure and an industrial control system, fiber optic cable, high voltage cable, and emergency back-up generator, and a transformer. The plant would be powered by the existing grid power and an emergency diesel generator. The generator would comply with California and Local District requirements. An aboveground storage tank would also be installed to service the emergency generator for up to forty-eight hours. Overhead utility lines would be installed from the plant to the existing utility lines, which run parallel to the existing supply route. All utility work would be done within the proposed impact areas for the new drinking water treatment plant, water wells (Section 2.3.2, Three New Water Wells), and approach roads (Section 2.3.3, Roadwork).

Telecommunications would consist of connecting telecommunication systems to the existing underground telecommunications network and to the new drinking water treatment plant. For purposes of security, all telecommunication and fiber line would run underground. The industrial control system would utilize the telecommunications system inside the treatment plant for internal management of the treatment process and the well production.

Due to the absence of a sanitary sewer system in the project area, sanitary waste from restrooms and kitchenette sinks would be disposed of through a belowground holding tank that would be pumped out regularly. It is anticipated that the holding tank would be capable of holding up to twenty-eight days of average sanitary flow.

2.3.2 Three New Water Wells

Alternative 1 includes the construction of three new 1,000-gallon-per-minute water wells within the project area (Figure 2-1). The precise location of these well sites would be optimized within the footprint shown, based on test well results. Each well site would include a single-story pump house and a twenty-foot-wide service road (Figure 2-4) as described in Section 2.3.3 (Roadwork). The pump house would be approximately 16 feet by 20 feet wide and surrounded by an approximately seven-foot-high galvanized fence with a one-foot outrigger. Each well site is anticipated to have a permanent impact area of up to 100 feet by 112 feet wide.

The water wells would be serviced by the installation's grid power. In addition, one of the three new water wells would also be serviced by an emergency diesel generator. The generator would be located within the perimeter fence of the well site and would comply with California and Local District requirements (California Air Resources Board, 2011). The fuel tank for this generator would be integral to the generator as opposed to a standalone tank. Electrical lines would be overhead on a new utility line that would service the wells from the plant's main facility. Telecommunication lines would be buried underground from the plant to the well sites. These electrical and transmission lines would be located within the permanent impact areas for the proposed approach roads, new drinking water treatment plant, and water well sites. The wells would be drilled to approximately 1,020 feet below ground surface. The actual depth of the wells would be determined in the field.

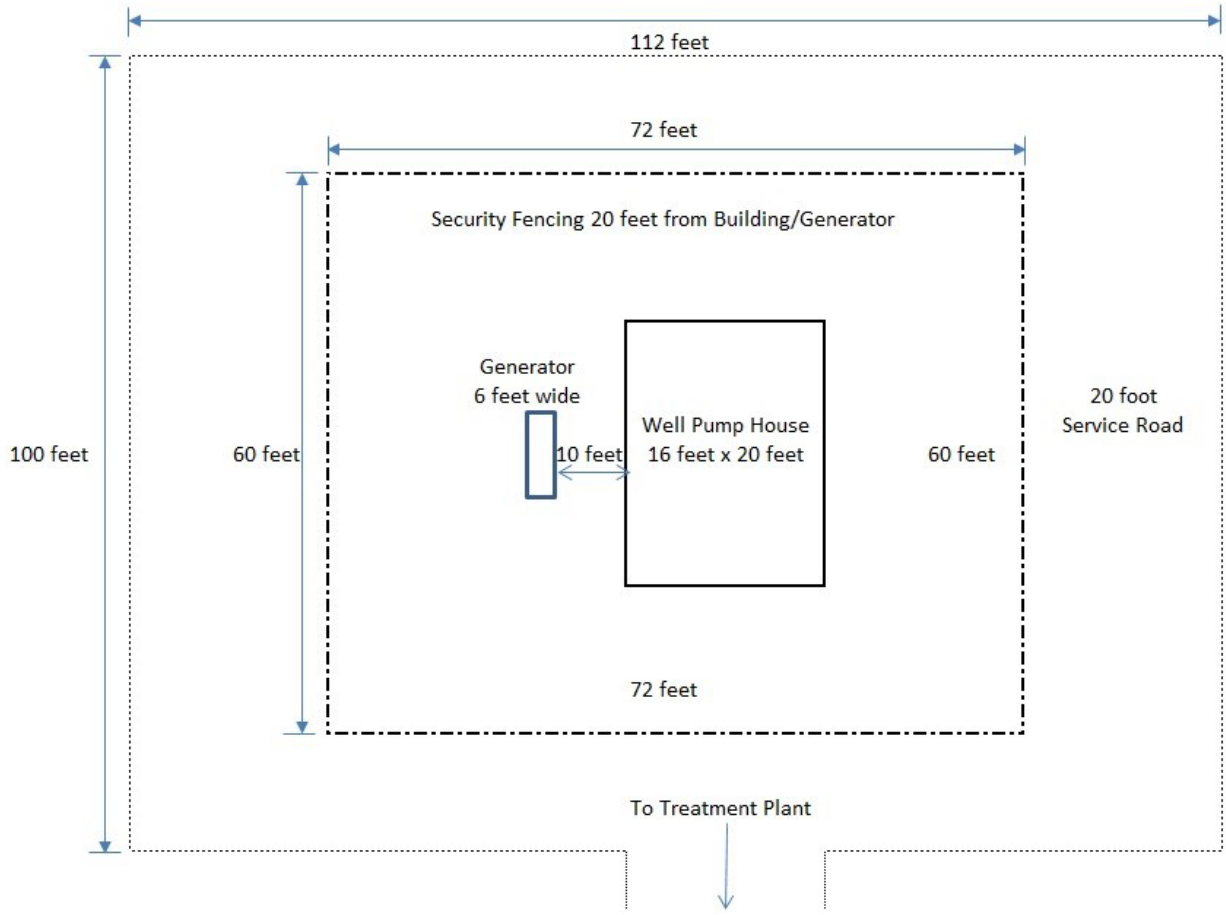

Figure 2-4: Notional Site Laydown of the Water Well Sites

2.3.3 Roadwork

Construction, maintenance, and operation vehicles would access the new drinking water treatment plant from the east using existing supply routes and corridors. In order to allow for the safe passage of these vehicles to access the new drinking water treatment plant and water wells, the following roadwork would be required:

- Improvement, maintenance, and repair of approximately 2.66 linear miles of an existing supply route
- Construction of approximately 160 linear feet of road to access the new drinking water treatment plant from the existing supply route
- Improvement, maintenance, and repair of approximately 1.78 linear miles of existing roads from the new drinking water treatment plant to the new water wells
- Construction of parking areas and roads within the perimeter fence of the new drinking water treatment plant and around each water well site

All roadwork would occur within the Combat Center's Sandhill Training Area (Figure 1-1).

Site preparation for roadwork would include clearing of vegetation, borrowing, excavating, grading, grubbing, and compacting. Road improvements would include reconstructing, leveling, or widening the existing road as well as installing ditches or erosion control structures, such as gabion headwalls, culverts, and/or riprap. It is anticipated that all roads would be gravel or aggregate composite. The existing supply

route would be improved to have up to a twenty-four-foot-wide drivable surface with no shoulders. Service roads from the treatment plant to the proposed wells would be a maximum of twelve feet wide with no shoulders, and the service road around the well pump houses would be twenty feet wide.

The proposed roadwork would permanently impact approximately 33.33 acres (Table 2-1). This estimate does not include parking areas and service roads that would be located wholly within the permanent impact areas for the new drinking water treatment plant and the water well sites. The width of the permanent impact area for the roadwork would include the width of the roadbed plus the width of the water transmission lines and other utilities that would be located adjacent to the roadbed.

2.3.4 Construction of the New Drinking Water Treatment Plant and Water Wells

Construction activities are anticipated to begin in 2019. It is expected that construction would take at least eighteen months to complete. All impact areas would be mechanically cleared of vegetation and graded. Impact areas would also be used for parking construction vehicles and for staging construction materials and equipment during construction. An additional one-acre staging area would also be used during construction. This staging area would be located near or adjacent to the proposed new drinking water treatment plant and it would be completely contained within the defined area of potential effect (APE). Following construction activities, impact areas that are not essential for the operation of the plant or water wells would revegetate naturally.

Accepted well construction standards and methods would be followed to lessen the likelihood of environmental impacts and ensure that the wells maintain a strong yield. Rotary drilling methods would be used to drill the wells. This method involves attaching a drill bit to a string of drill pipe. As the pipe is rotated, the drill bit grinds through rock and soil. Cuttings are then pushed upward and out of the hole by circulating drilling fluid (i.e., synthetic drilling mud) within the hole. Cuttings are typically composed of ground rock and drilling fluid. As such, cuttings have the potential to contaminate water supplies, including surface and groundwater. In addition to pushing up cuttings, this drilling fluid would cool the drill bit and prevent potential cave-ins. The hole would then be lined with well casing. A well screen may be used on the bottom of the well casing to allow groundwater to enter the well casing from the surrounding soil formation. The diameter of the hole is wider than the well casing, and the gap between the solid rock substrate and the well casing would be filled and grouted with either bentonite or cement. Water would ultimately be pushed to the surface by a submersible electric pump to a pressure tank. All drilling waste (cuttings) would either be disposed of, recycled, or reused in accordance with federal, state, and local regulations.

The following heavy equipment and vehicles, or their equivalent, may be used during construction: water trucks, road compactor, road paver, dump trucks, excavators, hole cleaner, trenchers, bore/drill rigs, cement and mortar mixers, crane, graders, tractors/loaders/backhoes, bulldozers, front-end loader, forklift, post-hole digger, and water well drilling machine. In addition, a diesel generator set may also be utilized during construction to power equipment and lighting. This generator set would comply with California and Local District requirements.

All construction activities would occur during normal working daylight hours whenever practicable and feasible. If activities must occur at night, lighting would be shielded to prevent atmospheric lighting.

2.3.5 Operation of the New Drinking Water Treatment Plant and Water Wells

Water supply from Surprise Springs and the Deadman Subbasin would be pumped from the aquifers and piped to the new drinking water treatment plant, located immediately upstream of the existing equalization tanks, where it would be blended and treated. Treatment would include reverse osmosis. The blended feed water would be desalinated using reverse osmosis, producing a permeate stream that

would be low in total dissolved solids irrespective of how much of the supply is provided by Deadman Subbasin. The reverse osmosis permeate would then be pH stabilized and disinfected prior to distribution.

The reverse osmosis process would generate a concentrate stream that would be disposed of in evaporation ponds and drying basins. The reverse osmosis concentrate could potentially be hazardous waste due to its corrosiveness. Therefore, the ponds would be lined and equipped with leak prevention and detection systems. Filters used in the reverse osmosis system would be disposable. As each filter cartridge reaches the end of its useful life, it would be removed for disposal at an appropriate disposal facility. At this time, it is anticipated that the filters would be managed as hazardous waste.

The new drinking water treatment plant would be automated, and it may be manned up to twenty-four hours per day. At this time, it is anticipated that up to two four-wheel drive vehicles may travel to the plant per eight-hour shift (six vehicles per day total). In addition to daily operational and maintenance activities, regular chemical and fuel deliveries would be required. It is anticipated that regular chemical deliveries would occur up to six times per month (seventy-two deliveries per year). The number of fuel deliveries would depend on the amount that the generator would run. It is currently estimated that there would be a once a month fuel delivery for each generator (twenty-four deliveries per year). In addition, up to 8,000 gallons of neutralized reverse osmosis clean-in-place waste would need to be picked up from the plant's neutralization tank approximately three times every six months (six times per year). All waste would be handled, labeled, transported, and disposed of in accordance with federal, state, and local regulations.

The water wells would be unmanned facilities. These facilities would require regular maintenance. The water well with an emergency generator would require maintenance more often than the other two water wells. At this time, it is estimated that the USMC would perform maintenance up to twelve times per year at two of the well sites and up to twenty-four times per year at the well site with the generator. No waste would be stored at the well sites.

2.4 DESCRIPTION OF ALTERNATIVE 2 – SEPARATE TREATMENT, TARGETED TREATMENT FOR EXISTING WELLS, AND PARTIAL REVERSE OSMOSIS TREATMENT FOR DEADMAN SUBBASIN WATER

Alternative 2 is for the construction and operation of a new drinking water treatment plant and three new water wells at the Combat Center. The only difference between Alternative 1 and Alternative 2 is that Alternative 2 would use a different groundwater treatment process than Alternative 1. Alternative 2 would include the same construction, maintenance, and operation processes as Alternative 1 and would have the same project footprint (Figure 2-1 and Figure 2-2) and permanent impact area as Alternative 1 (Table 2-1). This section provides more detail regarding the treatment process that the USMC would employ under Alternative 2.

Alternative 2 would separate the Surprise Springs Subbasin treatment from the Deadman Subbasin treatment, with the individual treatment trains for each source co-located immediately upstream of the existing equalization tanks at the new drinking water treatment plant. In the first treatment train, well water from the Surprise Springs Subbasin would be treated through ferrous reduction, caustic precipitation to remove chromium-6, and granular media filtration. Similar to the process for Alternative 1, all solids generated from the precipitation process would be sent to residue drying beds and ultimately landfilled.

Well water from the Deadman Subbasin would be treated by a second treatment train that would include split-stream treatment by activated aluminum oxide ("alumina") and reverse osmosis. In this treatment train, part of the well flow would be treated by granular media filtration, cartridge filters, and reverse osmosis to remove total dissolved solids, arsenic and fluoride, while the remaining flow would be bypassed and treated by activated alumina to remove fluoride and arsenic. If needed to meet final

blended water quality targets, this may require additional pH reduction prior to the activated alumina to enhance arsenic removal by activated alumina.

The reverse osmosis permeate and activated alumina treated bypass flow would then be blended together. The bypass/blend ratio would be set to ensure that the combined product from Treatment Train 1 (existing wells) and Treatment Train 2 (Deadman Subbasin) would meet the secondary maximum contaminant levels for total dissolved solids of 500 milligrams per liter, including scenarios where the Deadman wells are the only source. The finished water would meet the targeted treatment maximum contaminant levels and would be pH adjusted and disinfected prior to distribution.

If the Deadman Subbasin was to supply 100 percent of the Combat Center's water supply, approximately fifty-five to sixty percent of the supply would need to be reverse osmosis permeate, while forty to forty-five percent could be bypassed and treated by activated alumina only. When both aquifers are utilized, the percentages of reverse osmosis permeate required to meet the secondary maximum contaminant levels for total dissolved solids would decrease given the lower levels of total dissolved solids in the Surprise Springs Subbasin. The reverse osmosis concentrate stream would be directly disposed of in evaporation ponds and drying basins, similar to Alternative 1. Backwash wastewater from the granular media filtration would be treated by a solids-handling system to thicken the solids and reclaim the bulk of the backwash water. The thickened solids would then be disposed of in process residue drying ponds and ultimately landfilled. All chemicals used for cleaning the reverse osmosis system would be neutralized onsite and disposed of in an evaporation pond that would be lined and equipped with a leak detection system, and ultimately disposed of in an appropriate disposal facility. Furthermore, the reverse osmosis treatment train for the Deadman Subbasin source wells would be sized to provide 100 percent of the Combat Center's water supply needs, if needed.

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Other alternatives that were considered for this action but were eliminated from further analysis because they would not meet the purpose of and need for the Proposed Action or were not otherwise reasonable are described as follows:

2.5.1 Construct a New Drinking Water Treatment Plant to Treat Water from the Surprise Springs Subbasin Only

Under this alternative, a new drinking water treatment plant would be constructed that only treats well water from existing wells. This alternative would not meet the purpose of and need for the Proposed Action because the installation's water supply would not be capable of sustaining operations through the twenty-first century.

2.5.2 Purchase Municipal or Third-Party Potable Water

Under this alternative, the USMC would purchase potable water from a third-party vendor or municipality. Among other things, this alternative would likely require a new potable water line from the municipality. This alternative was not carried forward for analysis because it would decrease the installation's water security and it does not meet the screening criteria. In addition, the nearest water district (Twentynine Palms Water District) does not have the potable water capacity to meet the installation's current and future demands.

2.5.3 Construct a New Drinking Water Treatment Plant near Mainside

Under this alternative, the new drinking water treatment plant would be constructed near Mainside. This alternative was not carried forward for analysis because the plant would not be near existing water treatment infrastructure, including the existing equalization tanks and the Surprise Springs water wells.

2.5.4 Blend Existing Wells with Deadman Subbasin Water to Achieve Target Total Dissolved Solids, Followed by Target Treatment for Blended Water

This alternative would blend the existing Surprise Springs wells with the Deadman Subbasin source water to meet the secondary maximum contaminant levels for total dissolved solids of 500 milligrams per liter. In this alternative, the blended groundwater would not be desalinated by reverse osmosis but instead would be treated for other constituents. This alternative was not carried forward for analysis because it would require limiting the flow of the Deadman Aquifer to twenty-five to thirty percent of supply and would entail a complex treatment process.

2.5.5 Separate Treatment, Vessel-based Targeted Treatment for Existing Wells, and Reverse Osmosis for Deadman Subbasin Water with Partial Reverse Osmosis Concentrate Recovery

This alternative would include separate treatment of each groundwater source, with individual treatment trains for each source co-located immediately upstream of the existing equalization tanks. This alternative was not carried forward for analysis because this system would not be economically feasible and it would have low operability and require extensive labor.

2.5.6 Separate Treatment, Vessel-based Target Treatment for Existing Wells, and Partial Reverse Osmosis Treatment for Deadman Subbasin Water

This alternative would include separate treatment of each groundwater source, with individual treatment trains for each source co-located immediately upstream of the existing equalization tanks. This alternative was not carried forward for analysis because it would use a complicated treatment process that would require considerable operator attention and operators would have to be highly skilled and specialized, which would come at a premium cost.

CHAPTER 3. AFFECTED ENVIRONMENT

This chapter describes the existing environment near and within the project area. The region of influence (ROI) considered for most resources includes the permanent impact area for each alternative (see Table 2-1 and Figure 2-1) and those areas potentially affected by construction or operation noise. A wider regional area was evaluated for some environmental resources.

USMC procedures for implementing the NEPA specify that an EA should focus on those environmental resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of impact. Accordingly, the discussion of the affected environment and associated environmental analysis presented herein focuses on geological resources, biological resources, water resources, air quality, cultural resources, public health and safety, and utilities.

The following resources were not carried forward for analysis in this EA because potential impacts were considered negligible or non-existent:

Land Use. The action alternatives would occur on the Combat Center's Sandhill Training Area in an area that is currently designated as Category 1 (sensitive) and Category 2 (restricted) Special Use Areas. This designation was applied in part to protect drinking water infrastructure. The construction and operation of a water treatment plant in these areas would not change the existing land use.

Recreation. The action alternatives would occur on the Combat Center's Sandhill Training Area. Access to the proposed project area by the public is restricted, and the alternatives would not have direct, indirect, or cumulative impacts on recreational opportunities.

Aesthetic. The action alternatives would occur on the Combat Center's Sandhill Training Area and would not be viewable off-installation.

Environmental Justice. The action alternatives would occur within the Combat Center's Sandhill Training Area and would not pose a health or safety risk that disproportionately affect low-income or minority classes under Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*.

***Protection of Children*.** The action alternatives would occur within the Combat Center's Sandhill Training Area, and these alternatives would not pose a health or safety risk that disproportionately affects children. As such, these alternatives would comply with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*.

Socioeconomics. Although construction activities would have a short-term, positive contribution to the local economy by way of the acquisition of labor and material, implementation of any of the action alternatives would have a negligible socioeconomic impact on the region.

Noise. Construction and operation noise would not overlap any sensitive receptor, such as residential, educational, health, or religious structures or sites; parks or recreational areas (including areas with wilderness characteristics); wildlife refuges; or cultural or historical sites.

3.1 GEOLOGICAL RESOURCES

3.1.1 Geology

The Combat Center is located within the south-central Mojave Desert Geomorphic and Tectonic Province, also known as the Mojave Block. The Mojave Block consists of low mountain ranges, northwest-trending mountain ranges, and expansive desert with isolated fault-controlled rock outcrops separated by narrow-to-broad alluvial bases and lava flows (U.S. Department of the Navy and U.S. Marine Corps, 2015; U.S.

Department of the Navy and U.S. Marine Corps, 2016). (U.S. Department of the Navy and U.S. Marine Corps, 2018)

The Combat Center's geological setting consists of Tertiary Age (sixty-five million to 1.6 million years ago) basement rock with overlying Quaternary Age (1.6 million years ago to present) alluvial deposits. The basement rock is nearly impermeable except where it has been fractured or weathered (Marine Corps Air Ground Combat Center, 2012). The Combat Center is located over the Surprise Spring, Deadman, Mesquite, and Mainside subbasins of the Morongo groundwater basin (Li & Martin, 2011).

3.1.2 Soils

The project area is predominated by aridsol, but a strip of entisols soil runs across the northern section of the project area (Figure 3-1). Aridisols (soil series include Dalvord-Goldroad-Rock Outcrop, Halebruru, Edalph-Narea-Calcio, Eastrange-Owlshead-Gayspass, Sunrock-Haleburu-Lava Flows, and Playa [Typic Haplosalids-Amboy Crater]) are soils that form in water-deficient conditions where clay or minerals accumulate. Entisols (soil series include Arizo, Carrizo, and Cajon-Bluepoint) are very young and poorly developed soils with subsurface horizons (the data from the Natural Resources Conservation Service 1999, Soil Survey of Marine Corps Air Ground Combat Center, Twentynine Palms, California [U.S. Department of Agriculture] was used to compile the map referenced here (Soil Survey Staff, 2018)). Generally, the soil types within the Project Area have a high permeability.

Desert soils at the Combat Center are very fragile and highly susceptible to erosion. The majority of the project area is moderately to highly susceptible to wind erosion (Figure 3-2). During rain events, these soils are also susceptible to erosion by water. Rainfall is infrequent; however, flash flooding risk is high (U.S. Department of the Navy and U.S. Marine Corps, 2015).

3.2 BIOLOGICAL RESOURCES

3.2.1 Vegetation Alliances and Other Cover Types

Vegetation within the project area is predominantly creosote bush-white bursage scrub, with creosote bush (*Larrea tridentate*) being the dominant plant species (MCAGCC, by MultiMAC JV, 2016). In addition to creosote bush-white bursage scrub, smoke tree woodland and cheesebush scrub occur within the project area (Figure 3-3). Cheesebush scrub is located along the existing supply route to the project area, and developed lands are located north of the supply route at Camp Wilson (Figure 3-3). The California Department of Fish and Wildlife considers the smoke tree woodland a sensitive vegetation alliance (California Department of Fish and Game, 2010). Vegetation alliances were mapped for the legacy base in 2016 using a combination of field observations, aerial and geospatial analysis, and statistical assessments (MCAGCC, by MultiMAC JV, 2016). Based on vegetation alliance shapefiles analyzed in this EA, existing dirt roads are mapped as creosote bush-white bursage scrub rather than disturbed due to the large scale of the mapping effort.

3.2.2 Rare Plants

No federally or state-listed plant species are known to occur or have the potential to occur within the project area or its immediate vicinity (U.S. Marine Corps, 2012). One species, Joshua tree (*Yucca brevifolia*), was petitioned for listing as a federally threatened species under the Endangered Species Act on September 29, 2015; the U.S. Fish and Wildlife Service (USFWS) is currently conducting a twelve-month finding to determine if listing the species is warranted (USFWS, 2016a). This species occurs within the Sandhill Training Area in low numbers. However, no surveys have mapped the specific locations of Joshua trees to determine if they occur within the project footprint.

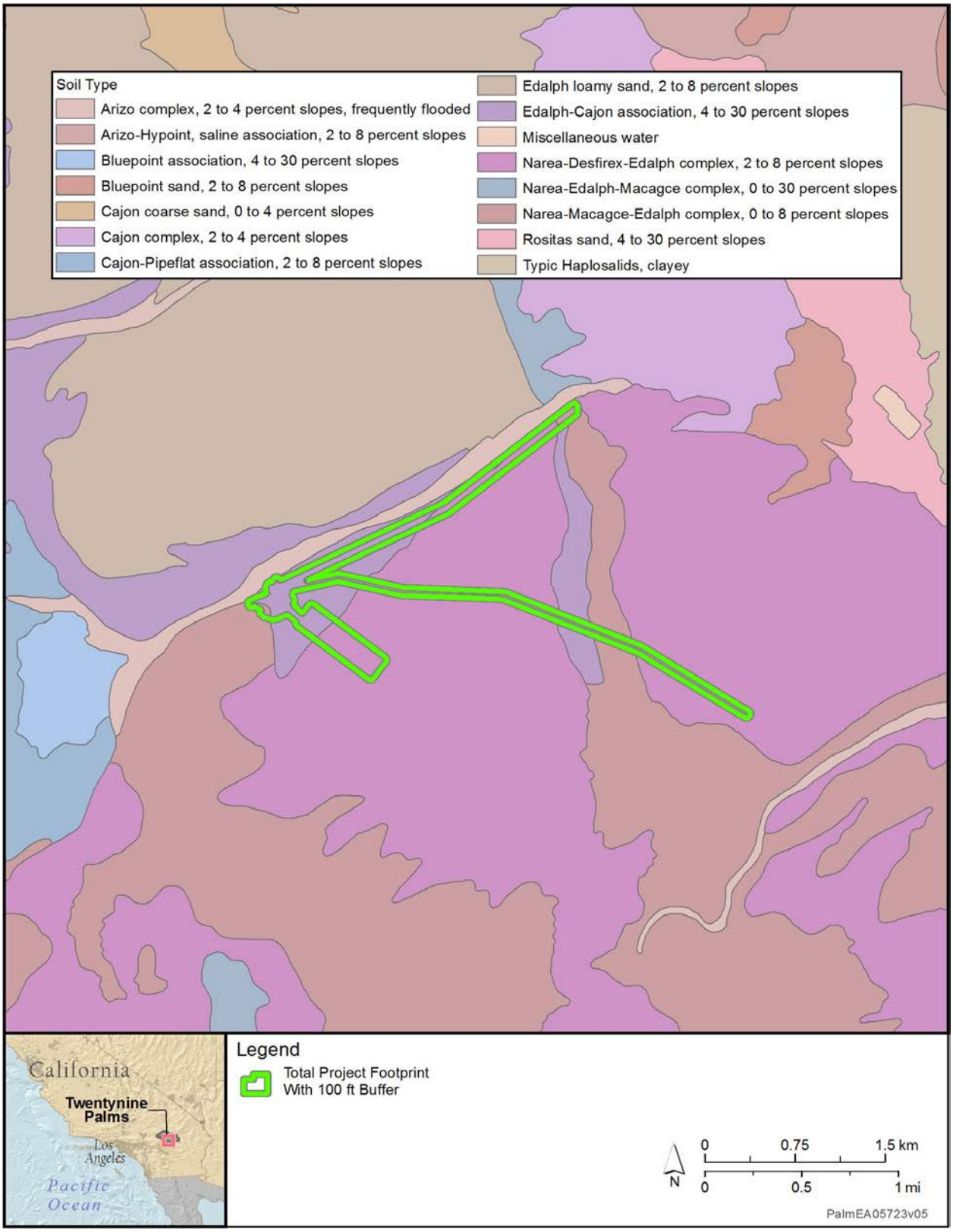

Figure 3-1: Soils in and around the Project Area

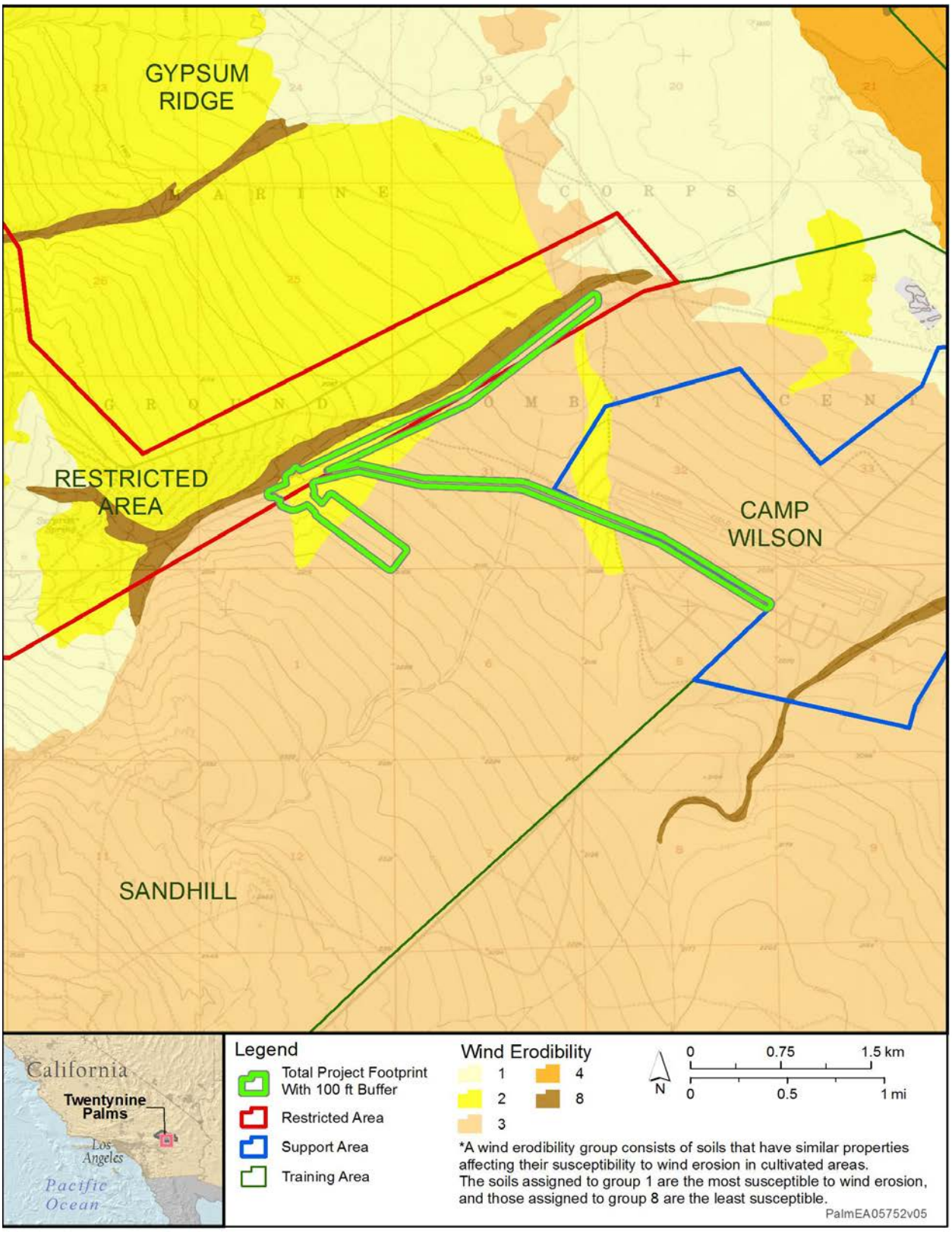

Figure 3-2: Wind Erodibility in and around the Project Area

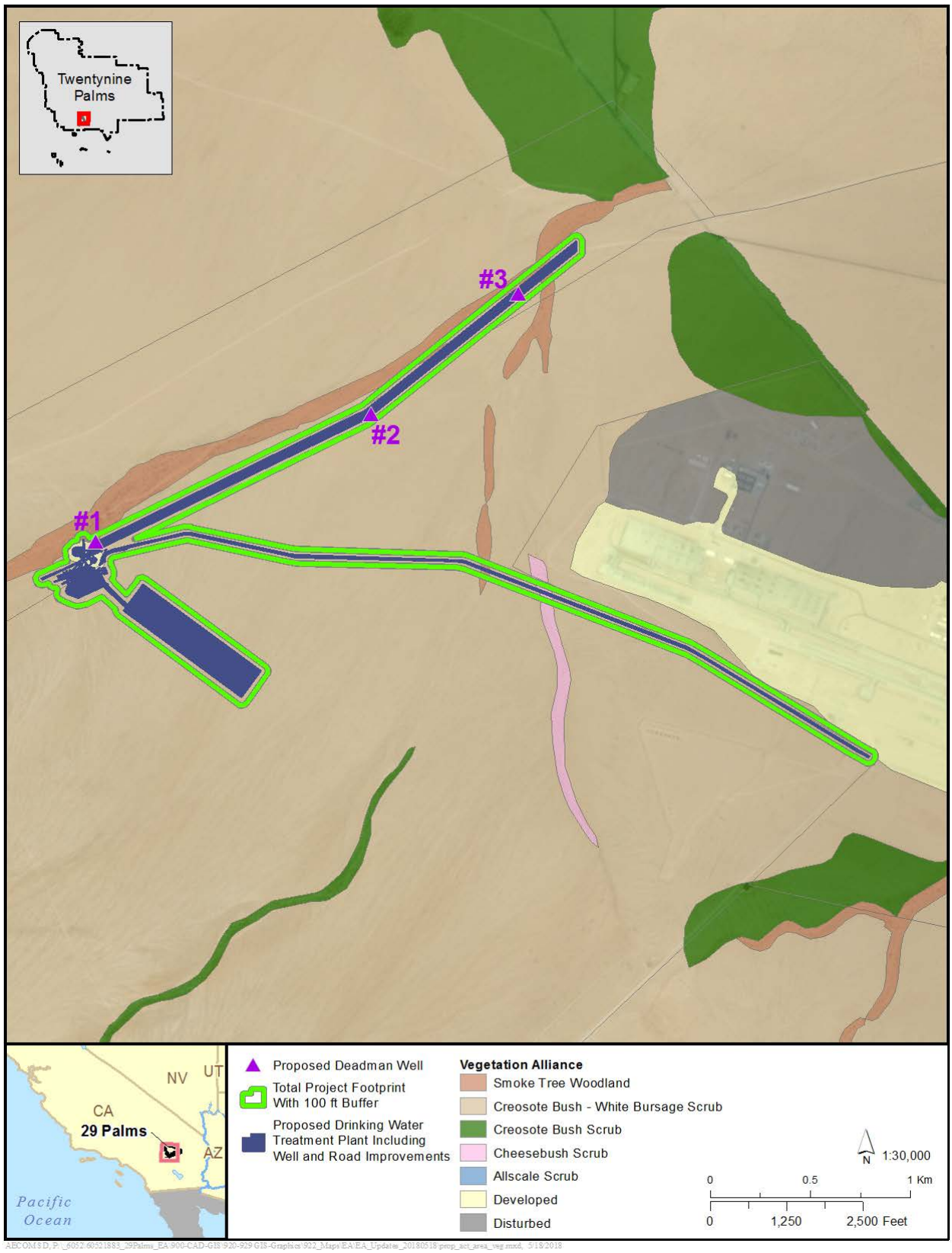

Figure 3-3: Vegetation in and around the Project Area

Eight non-federally listed rare plant species occur on the Combat Center, including Parish's onion (*Allium parishii*), winged cryptantha (*Cryptantha holoptera*), foxtail cactus (*Coryphantha alversonii*), Utah vine milkweed (*Funastrum utahense*), slender bedstraw (*Galium angustifolium* ssp. *gracillimum*), crowned muilla (*Muilla coronata*), white-margined beardtongue (*Penstemon albomarginatus*), and jackass clover (*Wislizenia refracta* ssp. *Refracta*) (U.S. Marine Corps, 2012). Of these, Utah vine milkweed (California Rare Plant Rank 4.2) and Jackass clover (California Rare Plant Rank 2B.2) are not listed by the state but are considered special status flora in the Combat Center Integrated Natural Resources Management Plan and are therefore included in project planning considerations. Utah vine milkweed is found in the project footprint and buffer, and jackass clover (California Department of Fish and Wildlife, 2017b) is found within the general area but not within or immediately near the project footprint (Agri Chemical & Supply, Inc., 2006).

3.2.3 Federally Listed Wildlife

The desert tortoise (*Gopherus agassizii*) is the only federally listed species that occurs in and within the immediate vicinity of the project area (Figure 3-4) (Henen, 2018). The desert tortoise is listed as threatened under the Endangered Species Act (16 USC sections 1531 et seq.). Although the USFWS has designated critical habitat for the desert tortoise, there is no critical habitat designated within the Combat Center (U.S. Fish and Wildlife Service, 1994). Based on findings from previously compiled survey data, the entire project area is considered potential habitat for the desert tortoise at a density of twenty-one to fifty desert tortoises per square mile (Figure 3-4) (U.S. Marine Corps, 2012).

3.2.4 Other Federally Protected and/or Rare Wildlife

There is the potential for multiple non-federally listed, rare wildlife species to occur year-round or migrate through the project area and its immediate vicinity. No non-federally listed, rare species of fish, amphibians, or reptiles are known to occur within this area. There is reasonable potential for a few non-federally listed, rare birds and mammal species to occur within the area.

The project area and its immediate vicinity include nesting and foraging areas for the loggerhead shrike (*Lanius ludovicianus*; particularly around Surprise Springs wash). In addition, a preliminary study of burrowing owls (*Athene cunicularia*) was conducted with a final report produced in 2007. The report concluded that burrowing owls were identified nesting within the project footprint during two years of surveys (Crowe & Longshore, 2007). Additionally, potentially suitable habitat is present within the project area (U.S. Marine Corps, 2016d). The loggerhead shrike and burrowing owl are protected by the Migratory Bird Treaty Act (MBTA) (16 USC sections 703–712). The Combat Center maintains a proactive management program to monitor burrowing owl populations and their habitat (U.S. Marine Corps, 2012).

There is the potential for four raptor species protected by the MBTA to forage within the area, but there is no known suitable nesting habitat for these species within the project footprint. This includes the prairie falcon (*Falco mexicanus*), northern harrier (*Circus cyaneus*), long-eared owl (*Asio otus*), and golden eagle (*Aquila chrysaetos*), which is also protected by the Bald and Golden Eagle Protection Act (16 USC section 668–668c). Based on a review of aerial photography, the project footprint, and adjacent habitat, the project area and buffers lack the topographical features such as cliffs, rocky outcrops, and ledges on rock faces that prairie falcon, long-eared owl, and golden eagle use as nesting habitat (Kochert et al., 2002; Marks et al., 1994; Steenhof, 2013). Additionally long-eared owls nest in dense, large trees (Marks et al., 1994), which are absent in the project footprint. Finally, northern harriers nest on the ground in areas of dense scrub, grassy vegetation, or other vegetative cover, often near sources of water such as lakes and marshes (Smith et al., 2011), which are not present in the area.

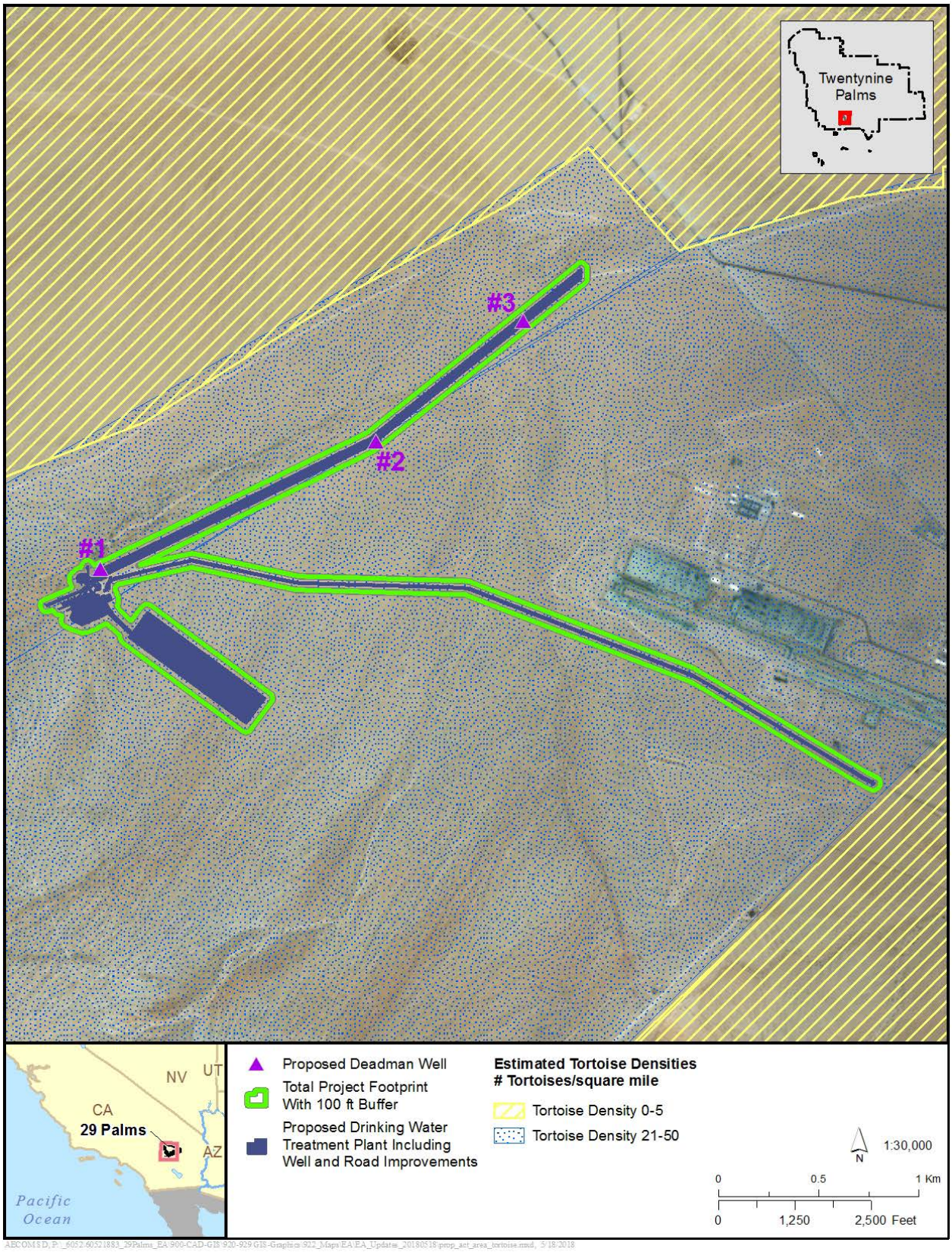

Figure 3-4: Desert Tortoise Density in and around the Project Area

Several non-federally listed rare bat species may forage in the area, including California leaf-nosed bat (*Macrotus californicus*), western mastiff bat (*Eumops perotis californicus*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*), although there is no suitable roosting habitat.

Currently, the Combat Center has an objective to monitor bat populations, which was last completed from 2011 to 2012 by using acoustic monitoring technology (U.S. Marine Corps, 2012).

There is the potential for additional mammal species to occur in burrows within the area, such as the pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*), desert kit fox (*Vulpes velox*), and American badger (*Taxidea taxus*). The Combat Center surveyed for the pallid San Diego pocket mouse several times and located the species only in 1999; it was not found during a 2011–2012 survey (Cutler et al., 1999; U.S. Marine Corps, 2012). Additional monitoring for this species will continue in future years.

3.2.5 Wildlife Corridors

Migratory avian species follow a broad front through the desert along the Pacific Flyway and stop over at scattered water bodies during migration within the Combat Center. Regionally, the Salton Sea, a large water body located south of the project area, is a major migratory stopover and destination for avian species. Smaller water bodies are scattered around the desert in golf courses, sewage treatment ponds, and other places where birds can rehydrate, seek cover, and then continue migration. For terrestrial species, the only potential wildlife corridor within the project area is a small ephemeral stream that connects Surprise Springs to the north and west with Deadman Lake (dry lake) to the east. While Surprise Springs is an intermittent spring that does not flow aboveground (currently there is no permanent surface water in the project area or nearby vicinity), wildlife species may still be attracted to this area due to the presence of vegetative cover (e.g., smoke tree woodland) for protection while moving. The majority of the project area south of the ephemeral spring is relatively flat and located in a large valley. Therefore, it is likely that only minor wildlife movement (e.g., foraging, dispersing, searching for mates, etc.) would occur on a local level for species moving within their home ranges along the ephemeral stream.

3.3 CULTURAL RESOURCES

3.3.1 Previous Cultural Resources Surveys and Known Cultural Sites

Data provided by the Combat Center included all previous cultural resources survey areas and all known cultural site locations within approximately one mile of the project area, an area encompassing approximately 19.6 square miles. These data showed that most locations in the immediate vicinity of the project area have been previously surveyed, with the exception of several small areas within and near the proposed plant site and a larger area just north of the plant site.

Data provided by MCAGCC Twentynine Palms indicated that twenty-three archaeological sites have been recorded within the records search area one kilometer around the project area. Records of these sites were obtained from the South Central Coastal Information Center at California State University, Fullerton. Most of the sites fall into two types that are among those described in the Integrated Cultural Resources Management Plan (Marine Corps Air Ground Combat Center, 2011, pp. 58-61). Eleven of these sites are classified as Segregated Reduction Locations, which are small discrete clusters of flaked stone that likely represent single reduction episodes, while ten are classified as Lithic Scatters, described as more generalized scatters of lithic debitage or tools. One site contains other materials in addition to flaked stone (ceramics and a shell artifact), and one site (CA-SBR-424/H) is an extensive deposit reflecting both prehistoric habitation and historic occupation. None of these sites are located within the project area.

3.3.2 New Field Surveys

Prior to conducting field surveys, an APE was defined that would serve as the basis for the consultation process under Section 106 of the National Historic Preservation Act. As defined, the APE includes all areas within 100 feet of proposed facilities. The surveys were conducted on February 9, 2017 and April 9, 2018, by a team of three to five archaeologists walking in parallel transects spaced between ten and fifteen meters apart. In consultation with the Combat Center and Naval Facilities Southwest, the field surveys included only those portions of the APE that had not been recently surveyed for cultural resources.

The surveys revealed no archaeological sites and fourteen isolated finds within the APE. The isolated finds within the APE include one prehistoric core, twelve historic isolates consisting of historic cans or small clusters of cans, and a United States Government Land Office survey marker. The historic cans consist of military ration tins that appear to date to the mid-to-late 20th century. All of the isolated finds were evaluated as not eligible for the National Registry of Historical Places (NRHP) (York, 2018).

3.4 WATER RESOURCES

3.4.1 Surface Waters

The Combat Center is in the Colorado River Hydrologic Region, in the eastern Colorado River Basin, and the project area is located within the Deadman Hydrologic Unit. The project lies within an undefined Hydrologic Area and Hydrologic Subarea (Figure 3-5). The Deadman Hydrologic Unit, which is located in the western Lucerne Valley Planning Area, covers approximately 231 square miles in San Bernardino County and is approximately 2,000 to 2,500 feet above mean sea level. The Deadman and Surprise Springs subbasins fall largely within the Deadman Hydrologic Unit; however, the northwestern (approximate) third of Surprise Springs falls within the adjacent Emerson Hydrologic Unit, and the southwestern corner falls within the Joshua Tree Hydrologic Unit. A small portion of the Deadman Subbasin at the northern end falls within the Lavic, Bessmer, and Emerson Hydrologic Units to the north, northwest, and west, respectively.

The topography of the Deadman Hydrologic Unit is generally a flat, broad eastward sloping alluvial desert plain surrounded by mountains and uplands. The majority of the Combat Center is situated on a hillside, and site topography slightly slopes from northeast to southwest. The Combat Center receives surface water runoff and recharge from the Emerson, Joshua Tree, Deadman, and Mesquite surface water drainage basins, each of which contains a dry lake (playa) at its low point.

The Deadman Hydrologic Unit and surrounding area are largely undeveloped and fall within the Combat Center's boundary. Active military base operations occur within the Deadman Hydrologic Unit to the east of the project area, and generally to the east and southeast of the Deadman Hydrologic Unit. In addition to military base operations, major land uses in the area include Joshua Tree National Park and the City of Twentynine Palms to the south.

The average annual precipitation in the Deadman Hydrologic Unit is approximately four to six inches. Surface waters in the Deadman Hydrologic Unit are minimal and are generally limited to ephemeral stream flow during the winter and spring storms. Ephemeral streams flow toward Deadman Lake, a dry lake located approximately two miles east of the project area. Beneficial uses (intermittent) of ephemeral streams identified in the Colorado River Basin Plan are groundwater recharge, Non-Contact Water Recreation, and Wildlife Habitat. There are no beneficial uses identified for Deadman Lake and no 303d-listed waterbodies in the vicinity of the project area. The existing stormwater collection system at the Combat Center involves stormwater channels and five retention basins. All stormwater runoff flows into the stormwater channels, collects in the basins, and evaporates without discharging into State waters

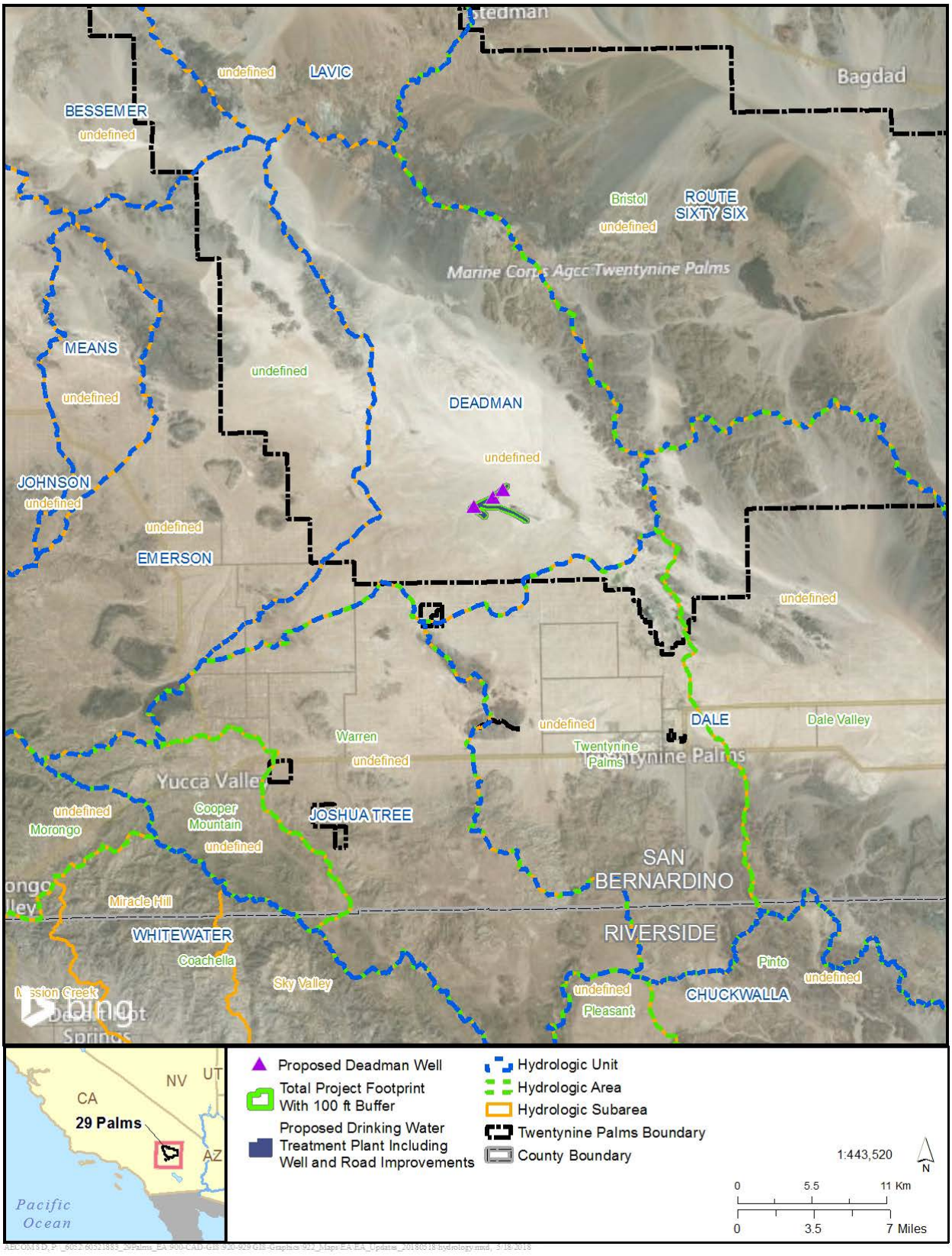

Figure 3-5: Hydrologic Features in the Vicinity of the Project Area

due to impermeability of the Combat Center's (Mainside area specifically) clay soil (Zec and Battelle, 2016a). Three stormwater collection basins are located south of Mainside, and two additional stormwater retention basins are located on Mainside.

3.4.2 Groundwater

The Combat Center is located in the eastern portion of the Morongo groundwater basin, within the Colorado River Basin Region. The Morongo groundwater basin is divided into seventeen subbasins, and the Combat Center overlies portions of the Surprise Springs, Deadman, Mesquite, and Mainside subbasins. The Deadman Subbasin is adjacent to (east of) the Surprise Springs Subbasin.

The Morongo groundwater basin is approximately 1,000 square miles and is located in the southern Mojave Desert, approximately 130 miles east of Los Angeles and five miles north of the City of Twentynine Palms. The Morongo groundwater basin is surrounded by the Ord and Granite Mountains to the north, the Bullion Mountains to the east, the San Bernardino Mountains to the southwest, and the Little San Bernardino Mountains to the south.

The regional aquifer in the Morongo groundwater basin consists of continental deposits of the Quaternary and Tertiary age that extend to as much as 10,000 feet deep. The Surprise Springs, Deadman, Mesquite, and Mainside subbasins contain Tertiary-age sedimentary deposits, Quaternary-Tertiary age alluvial fan deposits, and younger Quaternary age alluvial and playa deposits. The alluvial fan deposits in the region form the principal water-bearing units. These deposits have a combined thickness of 250 to 1,000 feet. Groundwater from the Surprise Springs Subbasin has been the Combat Center's primary source of potable water since the 1950s (Li & Martin, 2011).

Groundwater underflow, originating as runoff in the surrounding mountains, is the main source of recharge (Li & Martin, 2011). Recharge from direct infiltration of streamflow is minimal and occurs only during large storm events. Recharge from precipitation is negligible since the average annual precipitation in the area is only four to six inches. Groundwater discharges naturally from the Combat Center as spring flow, groundwater underflow to downstream basins, and water vapor to the atmosphere by transpiration from phreatophytes and direct evaporation from moist soil (Li & Martin, 2011).

Beneficial uses of groundwater in the Colorado River Basin Region are designated based on, and apply to, all groundwater basins within an individual Hydrologic Unit. The beneficial use designation for groundwater within the Deadman Hydrologic Unit as specified in the Colorado River Basin Plan, Lucerne Valley Planning Area (Regional Water Quality Control Board, 2014) is Municipal and Domestic Supply.

High concentrations of total dissolved solids, fluoride, and arsenic have been reported in groundwater in the Surprise Springs, Deadman, Mesquite, and Mainside subbasins (Li & Martin, 2011). Chromium has also been detected in the groundwater basins surrounding the project area, with higher concentrations in the Surprise Springs Subbasin (Li & Martin, 2011).

3.4.3 Floodplains

All military properties are exempt from Federal Emergency Management Agency (FEMA) regulations and, as a result, FEMA has not designated flood zones within the Combat Center. Precipitation in the region usually occurs from July to January and averages between three and four inches per year. Torrential rains in the summer and early autumn may produce flash flooding in the washes and canyons. Because of the extreme variability of precipitation and runoff in the high desert, and the physical setting of the Combat Center on a hillside, periods of significant surface runoff and rapid sheet flow during rain events can occur. Snowfall is rare and usually amounts to only one to two inches (2.5 to 5 centimeters) per year (Zec and Battelle, 2016a).

3.5 AIR QUALITY

California is divided into fifteen distinct air basins. The project area is within the Mojave Desert Air Basin, which consists of the Antelope Valley Air Quality Management District (AQMD), Mojave Desert AQMD, and the Eastern Kern Air Pollution Control District. The project area lies completely within the Mojave Desert AQMD, which would have the authority to enforce the federal and State standards for activities on the Combat Center.

Presently, the Mojave Desert Air Basin attains the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants except ozone (O_3) and particulate matter with particles less than or equal to ten micrometers in diameter (PM_{10}) (U.S. Environmental Protection Agency, 2015). The portions of the Mojave Desert Air Basin that encompass the Combat Center are rated as "Severe" for O_3 and "Moderate" for PM_{10} (U.S. Environmental Protection Agency, 2015). The southwestern portion of San Bernardino County, located within the South Coast Air Basin (in the Los Angeles and San Bernardino urban areas), is rated as an "Extreme" O_3 nonattainment area.

In partnership with the Mojave Desert AQMD, the Environmental Affairs at the Marine Corps Air Ground Combat Center has operated an air-monitoring program at the Combat Center since 1996. For the years for which data is available and is considered to be an appropriate representation of ambient air quality, the ambient air quality concentrations at this location are well below NAAQS and California Ambient Air Quality Standards for criteria pollutants other than O_3 and PM_{10} (U.S. Department of the Navy and U.S. Marine Corps, 2015). Table 3-1 includes the most recent annual air emissions inventory data.

Table 3-1: Annual Baseline Criteria and Precursor Air Pollutant Emissions for Mojave Desert Air Basin and Mojave Desert AQMD for 2012

Geographic Area	Criteria and Precursor Air Pollutant Emissions in Tons/Year					
	CO	NO_x	ROG	SO_x	PM_{10}	$PM_{2.5}$
Mojave Desert Air Basin	112,858	63,437	23,907	2,810.5	47,888	13,176
Mojave Desert AQMD	68,036	42,011	13,833	1,752	31,718	8,431

Notes: CO = carbon monoxide, NO_x = nitrogen oxides, ROG = reactive organic compounds, SO_x = sulfur oxides, PM_{10} = suspended particulate matter less than or equal to 10 micrometers in diameter, $PM_{2.5}$ = fine particulate matter less than or equal to 2.5 micrometers in diameter.
Source: (California Environmental Protection Agency, 2017)

3.6 PUBLIC HEALTH AND SAFETY

3.6.1 Health and Safety Risks

Due to recent annexation efforts, Mainside now falls within the census track for Twentynine Palms, which is a community of approximately 26,049 people (U.S. Census Bureau, 2018). The Combat Center has a base strength of an estimated 21,234 individuals. It is estimated that there are 15,800 active duty Marines and sailors, civilian employees, and contractor employees at the Combat Center (U.S. Marine Corps, 2016c). Although the Combat Center may on occasion host special events for the public, the Combat Center is a military facility that is generally not open to the public. In addition, the Sandhill Training Area is a restricted area.

3.6.2 Hazardous Materials and Waste Management

Combat Center Order 5090.1F requires that the Combat Center "operate in an environmentally sound manner and comply with applicable environmental statutes and regulations." The Combat Center regularly generates range residue and industrial waste. The Combat Center's Hazardous Waste Management Branch ensures that the installation's activities comply with the Resource Conservation and

Recovery Act (42 USC sections 6901 et seq.). This branch processes used oils, antifreeze, petroleum-contaminated soils, and brass ammunition casings, as well as universal wastes like lead-acid batteries, aerosol cans, and electronics (U.S. Marine Corps, 2016a). The Combat Center completed a Hazardous Waste Operations Manual in 2005 (U.S. Marine Corps, 2005) and an Integrated Solid Waste Management Plan in 2015 (U.S. Marine Corps, 2015).

The Combat Center is home to a Class III Landfill, which accepts only non-hazardous solid waste generated by the Combat Center. This landfill has a maximum limit of 100 tons per day and receives approximately 8,800 tons of solid waste annually (U.S. Marine Corps, 2015). The Combat Center also has a staging area for soil that has been contaminated by petroleum-based products during training and operations (U.S. Marine Corps, 2005). As a policy, civilian contractors are required to manage the wastes generated by their activities. Construction and debris wastes that are generated by contractors are not permitted in the Combat Center's landfill. However, the Combat Center's policy requires that the amount of debris diverted and disposed of by contractors be reported back to contracting personnel (U.S. Marine Corps, 2015).

3.7 UTILITIES

3.7.1 Electricity

Natural gas-fired turbine generators and solar power provide the majority of the Combat Center's electricity, with the rest supplemented by public utilities. A 7.2-megawatt cogeneration power plant, built in 2003, generates seventy-one percent of the Combat Center's electricity. Solar photovoltaic power at the Combat Center generates 2.6 megawatts, while a 1.1-megawatt photovoltaic array and 1.5-megawatt panels are on the rooftops of vehicle shade structures. The Combat Center constructed a second cogeneration power plant that consists of two 4.6-megawatt gas-fired turbines (U.S. Department of the Navy and U.S. Marine Corps, 2015). Existing primary and secondary distribution systems, telecommunications information systems infrastructure, and industrial control system, fiber optic cable, and high voltage cable transmission lines run parallel to the existing supply route.

3.7.2 Natural Gas

The Combat Center receives natural gas at the main meter/regulator station at Del Valle Road and Cottontail Road from a high-pressure main owned and operated by Southern California Gas Company, which has adequate capacity to serve existing base facilities (U.S. Department of the Navy and U.S. Marine Corps, 2015). There is no natural gas infrastructure in the project area.

3.7.3 Wastewater

One wastewater treatment plant services Mainside and Camp Wilson and is located west of Del Valle Road at Seventh Street. The treatment plant headworks have a maximum capacity of three million gallons per day, with an average flow rate of one million gallons per day (U.S. Department of the Navy and U.S. Marine Corps, 2015). There are no sanitary sewer systems or other wastewater infrastructure in the project area.

3.7.4 Potable Water

The Surprise Springs Aquifer provides all potable water consumed at the Combat Center. The installation has eleven potable water production wells that supply on average, two million gallons per day during the winter, and three million gallons per day in the summer. After entering the existing equalizer tanks, well water flows by gravity to the Camp Wilson reservoir and to the aboveground steel storage reservoirs at Mainside (U.S. Department of the Navy and U.S. Marine Corps, 2015).

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

This chapter presents an assessment of the potential direct and indirect impacts of implementing the No-Action Alternative, Alternative 1 (Proposed Action), and Alternative 2 on geological resources, biological resources, water resources, air quality, cultural resources, public health and safety, and utilities.

4.1 GEOLOGICAL RESOURCES

4.1.1 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to baseline geological resources. Therefore, implementation of the No-Action Alternative would not significantly impact geological resources.

4.1.2 Alternative 1 (Proposed Action)

4.1.2.1 Construction

Implementation of Alternative 1 would impact geological resources by excavating, grading, grubbing, compacting, and clearing of vegetation throughout the construction phase. Geotechnical and topographic surveys of the project area would be prepared prior to implementing Alternative 1. These surveys would identify the geological characteristics of the permanent impact areas as well as the depth of the groundwater. Although ground disturbance would occur, implementation of Alternative 1 would not affect any unique geological features (U.S. Department of Agriculture, 2017).

The total permanent impact area for Alternative 1 would be approximately 69.25 acres (Table 2-1). The water treatment plant would permanently impact approximately 34.92 acres. Approximately 34.33 acres would be permanently impacted for improving the existing supply route, constructing the wells, improving the service road to the well sites, installing utility lines, and establishing a construction staging area (Table 2-1). Alternative 1 would not affect any existing fault line or cause a geological hazard. To reduce the potential for seismic effects on proposed facilities, all facilities would be constructed in accordance with standard seismic design measures as identified in the Uniform Building Code.

Although soil would be disturbed during construction activities, construction would be performed in such a way as to minimize effects to the natural drainages, slope, and soil stability through the implementation of best management practices (Zec and Battelle, 2016a). Soil erosion at the Combat Center is addressed in the installation's Integrated Natural Resources Management Plan, which includes measures for minimizing erosion, protecting soil stability, and restoring training lands (Marine Corps Air Ground Combat Center, 2012). A qualified Stormwater Pollution Prevention Plan (SWPPP) developer would create a SWPPP and deliver a Notice of Intent to the Environmental Affairs Water Resources Manager prior to construction. This SWPPP would include temporary (e.g., wattles and silt fences) and permanent (e.g., riprap, settling basins, and slope stabilizers) erosion and sediment control measures. Therefore, implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.1.3.1 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact geological resources.

4.1.3 Operations and Maintenance

Impacts to geological resources would be avoided or minimized by requiring that all maintenance and operations vehicles stay on existing roads, follow speed limits, and slow during inclement weather. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.1.3.1 (Minimization,

Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact geological resources.

4.1.3.1 Minimization, Mitigation, and Monitoring Measures

The following minimization, mitigation, and monitoring measures support the conclusion that implementation of Alternative 1 would not significantly impact geological resources.

Planning (P) Phase activities

P1: The Action Proponent or the Contractor shall conduct standard soil and geotechnical surveys and investigations to ensure site stability.

Construction (C) phase activities

C6: The Construction Contractor shall maintain fill slopes no steeper than two to one (horizontal to vertical). Proposed cut slopes shall be determined by soil characteristics. The Contractor shall assess the shear strength characteristics of the particular soil or rock conditions present for safe allowable slope heights.

C7: The Construction Contractor shall perform grading such that all identified compressible materials shall be removed and re-compacted, and fill soils shall be placed and compacted.

C8: The Construction Contractor Proper shall conduct geotechnical studies before beginning excavation and grading to evaluate groundwater depth and shall use proper well construction methods (i.e., rotary drilling methods) to minimize impacts to groundwater.

C9: The Construction Contractor shall ensure that all disturbed slopes or other graded features are properly stabilized. The construction shall be phased to minimize disturbed ground, exposed area, and sediment runoff/fugitive dust potential.

C10: If contaminated soils are encountered, they shall be tested, used on site or disposed of within a Class I hazardous waste landfill, or disposed of in the lined portion of a Regional Water Quality Control Board-certified municipal landfill.

C11: Limit Disturbance Area – Project access shall be limited to existing access roads and project footprint, and will focus on previously disturbed areas to the extent feasible. The boundaries of all areas to be disturbed shall be clearly marked with stakes and flagging prior to construction activities. Crushing/removal of perennial, native vegetation in work areas shall be avoided to the maximum extent practicable, and only after pre-construction surveys for desert tortoise. Spoils and topsoil shall be stockpiled in either disturbed areas lacking native vegetation or areas that do not contain special-status plant species or sensitive vegetation communities. Parking areas and staging areas shall also be marked and shall be located in previously disturbed areas without native vegetation or special-status species habitat (such as along access roads).

C83: The action Proponent shall ensure any flowing or flushing of fire hydrants is performed with the use of a diffuser to reduce erosion of surrounding soils.

4.1.4 Alternative 2

The primary difference between Alternative 1 and Alternative 2 is that Alternative 2 would use a different groundwater treatment process than Alternative 1. Alternative 2 would include the same construction, maintenance, and operations processes as Alternative 1. As such, impacts to geological resources under Alternative 2 would be the same as Alternative 1. Therefore, implementation of Alternative 2, with the implementation of the minimization, mitigation, and monitoring measures listed above in Section 4.1.3.1 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and

Monitoring Implementation Plan), would not significantly impact geological resources.

4.2 BIOLOGICAL RESOURCES

For the purposes of analyzing impacts to biological resources, it is noted that a temporary 1-acre staging area would be located within the 100-foot buffer in the vicinity of Well #1, where ample space is available for this project component. The exact location of this staging area has not been determined. However, it is assumed to be located outside of any sensitive vegetation community within creosote bush-white bursage scrub because this vegetation community is dominant onsite (ninety-three percent of the project area and buffer consist of creosote bush-white bursage scrub). Biologists on site will survey the footprint so the staging area can be positioned to avoid sensitive vegetation communities. It is further assumed that the staging area intersects with desert tortoise-occupied habitat to ensure a conservative estimate of impacts. Due to the length of time required for restoration of fragile desert habitats, all staging area impacts are considered permanent in nature.

4.2.1 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to baseline biological resources. Therefore, implementation of the No-Action Alternative would not significantly impact biological resources.

4.2.2 Alternative 1 (Proposed Action)

4.2.2.1 Vegetation Alliances and Other Cover Types

Under Alternative 1, proposed construction activities would permanently impact approximately 69.25 acres within four vegetation alliances and other cover types as detailed in Section 3.2.1 (Vegetation Alliances and Other Cover Types). Smoke tree woodland is the only sensitive vegetation alliance within the project area. Implementation of Alternative 1 would directly impact 1.68 acres of smoke tree woodland from construction (Table 4-1). It is anticipated that permanent direct impacts would occur to all vegetation alliances and other cover types within the project as detailed in Figure 3-3. This would occur through activities such as grading, blading, and compacting, during project construction.

Additionally, indirect impacts would occur to vegetation alliances within the 100-foot buffer around the project. The acreages of indirect impacts are listed in Table 4-1. Indirect impacts may occur through exotic species invasion into adjacent undisturbed habitat, fugitive dust that accumulates on plants and reduces their photosynthetic capacity (thereby reducing their overall growth and fitness), and changes in hydrology from soil compaction and new impervious surfaces.

While impacts to vegetation alliances would occur through construction of the project, the vegetation alliances within the project footprint are commonly found throughout the deserts of Southern California. Smoke tree woodland is the only sensitive vegetation alliance present and, at most, 1.68 acres would be removed by construction. This is a small fraction of the total acreage of smoke tree present throughout the Combat Center (approximately 9,978 acres), and this vegetation alliance is broad ranging throughout washes in the deserts of Southern California. All other vegetation communities present onsite commonly occur throughout the Combat Center, and beyond listed species-habitat based impact considerations (Section 4.2.2.3, Federally Listed Wildlife), impacts to vegetation alliances are considered nominal. Therefore, implementation of Alternative 1 would not significantly impact vegetation alliances or other cover types.

Table 4-1: Estimated Impacts to Vegetation Alliances and Other Cover Types within the Project Area

Vegetation Alliances and Cover Types		Project Impact Area (acres)	100-foot Buffer (acres)	Total (acres)
Vegetation Alliance	Creosote bush-white bursage scrub	66.48	125.93	192.41
	Smoke tree woodland[1]	1.68	5.98	7.66
	Cheesebush scrub	0.16	1.20	1.36
Other Cover Type	Developed	**0.93**	**4.30**	**5.23**
	TOTAL[2]	**69.25**	137.41	206.66

[1] Sensitive vegetation alliance

[2] Numbers may not sum due to rounding

[3] One-acre staging area to be located within creosote bush-white bursage scrub in the vicinity of Well #1 is included in this total. Staging area is not displayed on Figure 3-3 as exact location is to be determined.

4.2.2.2 Rare Plants

While there are currently no federally listed plant species within the project footprint, the Joshua tree is proposed for listing; the USFWS is in the process of determining if listing is warranted (U.S. Fish and Wildlife Service, 2016a; U.S. Fish and Wildlife Service, 2016b). Joshua trees occur in the general vicinity within the Sandhill Training Area; however, no mapping of specific locations has been conducted, so it is unknown if there are any Joshua trees within the project footprint that may be impacted. If Joshua trees are present within the project footprint, they will be avoided.

There is the potential for direct impacts to two non-federally listed rare plants, Utah vine milkweed and jackass clover, during construction activities. Utah vine milkweed occurs within the project footprint and one-hundred-foot buffer. Additionally, there is the potential for jackass clover to occur within the Surprise Spring wash, but closer to Surprise Spring in proximity to the proposed pipeline location. The non-federally listed rare plants would be avoided to the greatest extent feasible. There is also the potential for indirect impacts to Utah vine milkweed and jackass clover through exotic species invasion into native habitat and changes in hydrology due to compaction and runoff from impervious surfaces of the project. Through implementation of Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), Alternative 1 would not significantly impact non-federally listed rare plants.

4.2.2.3 Federally Listed Wildlife

The desert tortoise is the only federally listed wildlife species known to occur within the project area and immediate vicinity. Areas of potential habitat were assessed through previously conducted field surveys and a thorough assessment of aerial imagery. Field surveys assessed include those conducted by

- KEA Environmental, Inc. (1997), who completed desert tortoise surveys within the boundaries of the Expeditionary Airfield and Exercise Support Base on the Combat Center, including the project area;
- Gardner and Brodie (2000), who studied the distribution of desert tortoise on the Combat Center in higher elevations and on steeper slopes;
- Woodman et al. (2001), who completed desert tortoise surveys across the entire installation, including the project area;
- Garcia and Associates (2008), who completed desert tortoise surveys within Mainside and Camp Wilson portions of southern MCAGCC in support of the EA for the permanent Grow the Force (GTF) facility bed-down on the Combat Center, including portions of the project area; and
- field observations from 2006 to 2018 (Henen, 2018).

The density for desert tortoise in the permanent impact area (approximately 117 acres) is twenty-one to fifty tortoises per square mile (Figure 3-4) (U.S. Marine Corps, 2012). A 100-foot buffer was established around this permanent impact area, and the desert tortoise density within the buffer is also twenty-one to fifty tortoises per square mile (Figure 3-4). Therefore, desert tortoise density for the entire project footprint plus 100-ft. buffer (205.66 acres) is estimated to be twenty-one to fifty tortoises per square mile (Figure 3-4).

Permanent direct and indirect impacts would occur to desert tortoises through implementation of the project, including both construction and operations. There is the potential for approximately three to six desert tortoises to be directly impacted by construction activities within the project impact area (69.25 acres or 0.12 square mile; times twenty-one to fifty tortoises per square mile). Indirect impacts to desert tortoise may also occur. There are 136.41 acres (0.21 square mile) of assumed occupied habitat within the 100-foot buffer, but outside the permanent impact area, which equates to approximately four to eleven desert tortoises within the 100-foot buffer (0.21 square mile times twenty-one to fifty tortoises per square mile). Therefore, in total, seven to seventeen desert tortoises may occur in the Proposed Action area (project impact area plus 100-foot buffer). While desert tortoises are normally more active above ground during the spring and fall (and easier to detect), they may be present in burrows year-round.

Construction-related vegetation clearing would directly impact desert tortoise through the loss of foraging and breeding habitat. There is also the potential for a desert tortoise to be injured or killed during construction. In addition, greater volumes of traffic during both the construction and operation phases of the project may result in impacts to desert tortoise should an individual be struck by a moving vehicle traveling to or from the project.

In an effort to minimize potential impacts to desert tortoise during construction, maintenance, and operation phases, the conservation measures of MCAGCC Biological Opinion (U.S. Fish and Wildlife Service 2002, 2017) will be applied. These measures will include, among others requiring implementation, those stipulated in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), such as pre-construction clearance surveys being performed by USFWS Authorized Biologists (approved by Environmental Affairs, MCAGCC) prior to grading or clearing during construction or operations, desert tortoise awareness briefings for all construction and maintenance personnel (including chemical transport and waste removal trucks), and installing and maintaining permanent desert tortoise exclusion fence at the project perimeter fence of the evaporation ponds (Figure 2-1); temporary exclusion fence will be installed for the construction of the plant and wells. Clearance surveys would be conducted to remove any desert tortoise from inside the fencing and place them in adjacent habitat outside of the fencing. Any potential desert tortoise burrows within the project footprint would be scoped to ensure burrows are not occupied before they are collapsed. All protocols related to movement of desert tortoise would follow the most recent guidance as outlined in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009), unless otherwise authorized by the USFWS. A security fence would be installed around the proposed water treatment plant to inhibit wildlife from accessing the proposed evaporation ponds. The structure and design of the security fence would also follow guidelines for desert tortoise exclusion fencing outlined in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) to prevent desert tortoises from burrowing under the fence and entering the evaporation ponds.

Operations of the project may also have indirect impacts on desert tortoises. New structures and evaporation ponds would attract additional wildlife, including desert tortoise predators such as the common raven (*Corvus corax*), and create new perching, foraging, and nesting sites. Water is a limited resource in desert environments, and water in the evaporation ponds may serve as a predator subsidy, which may artificially inflate predator numbers in the surrounding area. Common ravens travel up to approximately forty miles from their roosts to water and other subsidies (Boarman, 2003). However,

travels of much shorter distances to specific point subsidies (such as landfills and water locations) are more common and occur at shorter distances (Kristan III & Boarman, 2003). Since common ravens are opportunistic generalists in foraging ecology and diet, they are capable of exploiting a variety of natural and anthropogenic resources (including food, water, and shelter; Kristan et al., 2004). An increase in human presence may also increase common raven numbers (or encourage common ravens to spend more time in the area searching for food and water subsidies), all of which may result in impacts to desert tortoise in the form of increased predation. An avian deterrent system would be employed at the evaporation ponds to prevent/minimize wildlife access to the ponds. While the exact design is to be determined, the deterrent system may involve active detection and deterrence (noise or lights) as well as anti-perching devices. As an additional precaution, anti-perching devices would be installed on power poles around the evaporation ponds and facilities to limit/minimize avian use of these poles for perching, thereby minimizing use of the area by avian species in general.

The following additional measures would also be adopted to reduce impacts to desert tortoise: enforcing a twenty miles per hour (thirty-two kilometers per hour) speed limit along the access road and Main Supply Route; implementing a worker environmental awareness program for all construction and operations personnel; and implementing best management practices to clean up trash, prevent standing water, and ensure parked vehicles are checked for desert tortoises prior to being moved. Although measures are in place to reduce impacts to desert tortoise, construction and operation of the project would result in a loss of approximately 69.25 acres of desert tortoise habitat. Impacts to desert tortoise and its habitat would be covered under the installation's Biological Opinion for desert tortoise (U.S. Fish and Wildlife Service, 2002). All measures outlined in this Biological Opinion would be followed during project implementation.

The Base-wide Biological Opinion (U.S. Fish and Wildlife Service, 2002) permits up to 150 acres per year of loss or disturbance of habitat for the desert tortoise from covered activities. A total of 69.25 acres of desert tortoise habitat will be deducted from the Combat Center's annual acreage allotment associated with this project. With implementation of the above-mentioned measures, including those listed in the Biological Opinion and those outlined in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), impacts associated with implementation, operation, and maintenance of the Water Treatment Plant under Alternative 1 would not significantly impact the species.

4.2.2.4 Other Federally Protected and/or Rare Wildlife

Non-federally listed rare or otherwise protected wildlife species potentially resident within the project area that may be impacted include loggerhead shrike, burrowing owl, desert kit fox, and American badger. There are additional non-federally listed rare wildlife species, including migratory bird species protected by the MBTA, which may occasionally forage within, fly through, or temporarily use the project area. Non-federally listed rare wildlife species may be directly impacted through the loss of habitat and potentially through trampling or crushing from project construction. Indirect impacts may occur through an increase in nighttime lighting (from permanent security lights), an increase in predation (from increased perch availability from project fencing and infrastructure, and from evaporation ponds that provide water and attract predatory species).

Non-federally listed rare avian species could be impacted if ground disturbance (including vegetation clearing) takes place during the bird-breeding season (generally February 1 through September 30). To reduce those impacts, pre-construction nest clearance surveys would be conducted for nesting birds (including burrowing owls), to identify any potential nests that need to be avoided. These surveys, intended to prevent the likelihood of violating the MBTA, would take place no more than three days prior to the start of vegetation removal to identify any active nests that would need to be avoided. Active nests include nests with eggs, young, or fledglings in them. Any active nests found during pre-construction

clearance surveys would have an appropriately sized buffer (typically 300 feet [ninety-one meters] for songbirds/non-raptors, and 500 feet for raptors including burrowing owls) placed around them until nesting is complete to prevent disturbance and possible violation of the MBTA. If burrowing owl burrows are detected during the pre-construction survey or during construction, their burrows would need to be avoided until the end of the breeding season. If burrowing owls are present within the project area outside of the breeding season, individuals may need to be passively excluded from their burrows to encourage them to leave the project area prior to any construction. Biological monitoring would be conducted throughout construction to conduct clearance sweeps and ensure burrowing owls are not present within the project area.

If construction must take place during the migratory bird-breeding season (generally February 1 through September 30) and an active nest cannot be avoided, it may be necessary to obtain a permit to remove or relocate the nest out of harm's way. Therefore, implementation of Alternative 1 along with the minimization, mitigation, and monitoring measures listed below in Section 4.2.2.6 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact non-federally listed rare wildlife.

4.2.2.5 Wildlife Corridors

The wash along the north end of the project area may serve as a local wildlife corridor. Since the project would not create any barriers or fences within the wash, wildlife movement would not be impacted. During construction, wildlife may temporarily avoid the area around the proposed pipeline that bisects Surprise Spring wash. However, once construction of the pipeline is complete, wildlife are expected to move freely through the wash. Surface water within the evaporation ponds would attract a wide variety of wildlife species, especially since water is a limiting factor in the desert, and there is no adjacent standing water. However, the proposed water treatment plant would have a security fence around it, which would inhibit wildlife from accessing the proposed evaporation ponds.

The evaporation ponds would attract avian species migrating through the desert and provide a resource for local resident avian species. Migrating species would stop over to rest, rehydrate, and then continue their migration. Some of the ponds may contain reverse osmosis concentrated reject. Data is not available at this time to complete an analysis of the anticipated exact concentration of the reject; however, it will be corrosive in nature and thus is assumed to be harmful to wildlife. Because of the potential impacts to birds, efforts would be made to prevent or minimize effects to avian species. An avian deterrent system would be employed at the evaporation ponds to prevent/minimize wildlife access to the ponds. While the exact design is to be determined, the deterrent system may involve active detection and deterrence (noise or lights) as well as anti-perching devices. As an additional precaution, anti-perching devices would be installed on power poles around the evaporation ponds and facilities to limit/minimize avian use of these poles for perching, thereby minimizing use of the area by avian species in general. Therefore, implementation of Alternative 1 would not significantly impact wildlife corridors.

4.2.2.6 Minimization, Mitigation, and Monitoring Measures

The following minimization, mitigation, and monitoring measures support the conclusion that implementation of Alternative 1 would not significantly impact biological resources. The USMC will implement an adaptive approach to the deterrent system, monitoring and adjusting the system as necessary to demonstrate effectiveness at preventing/minimizing avian access to the ponds for at least two consecutive years.

Planning (P) Phase activities

P2: The Action Proponent and the Contractor shall engage MCAGCC Environmental Affairs for scheduling surveys and initial screening of Authorized Biologists for pre-construction clearance surveys and construction monitoring. Authorized Biologists for desert tortoise surveys and monitoring must be approved first by MCAGCC Environmental Affairs, who will request the USFWS review at least thirty days prior to survey or monitor work. Surveys will follow the *Desert Tortoise Field Manual* (2009) or more recent guidance, include pre-construction clearance surveys for project plant (including exclusion fence installation), well site, water transmission line, utilities and roadwork, and will be conducted immediately prior to any construction activities related to the Project Action.

P3: Prior to the onset of construction, the Action Proponent will appoint an official representative to oversee compliance with all protective measures, including tortoise awareness briefs, for the desert tortoise during construction, maintenance, and operation of the water treatment plant, water wells, and infrastructure improvements. This person will receive and investigate reports of non-compliance, will have the authority to stop all activities that may violate these measures, and will notify MCAGCC Environmental Affairs immediately of non-compliance or take of desert tortoise.

P4: The Action Proponent shall coordinate with Environmental Affairs to implement a Desert Tortoise Education Program specific to the new water treatment plant, water wells, and infrastructure improvements for civilian personnel that work on the Combat Center during the construction and operation phase. All personnel shall go through the education program prior to construction activities and any associated activities that may affect desert tortoises. The desert tortoise education program will also assist in ensuring that no trash or roadkill will be made available that might attract desert tortoise predators, such as the common raven (*Corvus corax*).

P5: Environmental Affairs shall work with the Action Proponent and contractor on the raven plan, from selection of appropriate avian deterrent technology to implementation and monitoring in order to minimize raven effects to desert tortoise. This plan will address ways in which the new evaporation ponds and human presence may increase common raven numbers and how their effects on desert tortoise within the Project Area will be minimized through monitoring and management. The plan shall include methods for monitoring common ravens, measures to implement to deter common ravens including hazing, egg oiling, and adaptive management measures. The plan shall specify design features to be implemented to deter nesting and perching common ravens in the Project Area, which may include physical bird deterrents such as, but not limited to, bird spikes, Bird-B-Gones, WhirlyBirds, and other anti-perching devices.

P6: The Construction Contractor shall develop an Environmental Protection Plan that includes the requirements of the EA and the existing Biological Opinions (U.S. Fish and Wildlife Service, 2002; 2017).

Design (D) phase activities

D1: To comply with the MBTA and the Bald and Golden Eagle Protection Act, project design and any aboveground utility upgrades shall incorporate raptor protection measures, as applicable.

D2: An avian deterrent system would be employed at the evaporation ponds to prevent/minimize wildlife access to the ponds. While the exact design is to be determined, the deterrent system may involve active detection and deterrence (noise or lights) as well as anti-perching devices.

Construction (C) phase activities

C11: Limit Disturbance Area – Project access shall be limited to existing access roads and project footprint, and will focus on previously disturbed areas to the extent feasible. The boundaries of all areas to be

disturbed shall be clearly marked with stakes and flagging prior to construction activities. Crushing/removal of perennial, native vegetation in work areas shall be avoided to the maximum extent practicable, and only after pre-construction surveys for desert tortoise. Spoils and topsoil shall be stockpiled in either disturbed areas lacking native vegetation or areas that do not contain special-status plant species or sensitive vegetation communities. Parking areas and staging areas shall also be marked and shall be located in previously disturbed areas without native vegetation or special-status species habitat (such as along access roads).

C12: Qualified Botanist: A qualified botanist is defined as a botanist who has been authorized by the Navy to conduct surveys, monitoring, or relocation/salvage activities for special-status plant species. A qualified botanist can also be a qualified biologist by satisfying the appropriate requirements.

C13: Qualified Biologist: A qualified biologist is defined as a wildlife biologist who has been approved by the Navy to conduct surveys, monitoring, or relocation activities for nesting birds and other special-status wildlife species. For all field efforts involving desert tortoise (i.e. species specific surveys and monitoring), a qualified biologist will work under the direct supervision of an Authorized Biologist (defined under C17). A qualified biologist is not authorized to handle desert tortoise. A qualified biologist can also be a qualified botanist by satisfying appropriate requirements.

C14: Special-status plant species: Preconstruction surveys shall be conducted within the ROI. For non-listed special-status species, if work is scheduled to be conducted within the appropriate blooming period for rare annual plants or habitat is present for special-status plant species, then a survey shall be conducted seven to fourteen days prior to the start of project construction. All special-status plants detected within the ROI shall be flagged or marked by the qualified botanist in a highly visible manner to be avoided to the greatest extent possible. The botanist shall flag Joshua trees identified within the project footprint, but not in the immediate work area, to avoid. Any Joshua trees that are within the area of ground disturbance shall be excavated and moved to an area of similar elevation and soil type, and replanted in the same orientation as they were originally facing.

C15: Vegetation Alliances: Impacts to plants within sensitive vegetation communities shall be minimized to the greatest extent feasible during construction. Care shall be taken to not cause root erosion (through grading or blading) or damage to sensitive vegetation community plant root systems. If necessary, a qualified biologist or botanist shall have flagged ahead of time (during preconstruction surveys for special-status plant species) any particularly sensitive areas to be avoided. Additionally, a qualified biologist or botanist may be present during construction to help direct crews where to drive and stage vehicles to minimize impacts to sensitive vegetation communities to the greatest extent feasible.

C16: Non-federally listed rare plants: Special-status plant species within the ROI shall be marked via flagging, stakes, or other obvious means to be avoided during construction to the greatest extent feasible. If temporary grading of a previously undisturbed area is required (for example to level out sections of an area for temporary equipment staging), salvage of topsoil from the area shall be conducted in the undisturbed area prior to any grading. This soil shall be stockpiled and reapplied to the affected area after construction in the area has ceased.

C17: Authorized Biologist: When requesting authorization of biologists to handle desert tortoises (hereafter referred to as Authorized Biologist), the Action Proponent will submit the credentials to the MCAGCC Environmental Affairs for review. Credentials must be submitted on USFWS Authorized Biologist Qualification Forms. Environmental Affairs will submit acceptable credentials, at least thirty days prior to the field need for the Authorized Biologist, to the USFWS for final review and approval. For authorization of specialized handling activities (e.g., transmitter placement or health assessments), the Action Proponent will clearly define activities for which it is requesting authorization and provide credentials that

are specific to those activities. These Authorized Biologists (i.e., a biologist authorized by the USFWS) will be on site at all times during construction to monitor and relocate desert tortoises if necessary and will supervise qualified biologists (defined under C13) assisting with desert tortoise field efforts (i.e. species specific surveys and monitoring) at all times.

C18: In areas known to support desert tortoises, the Action Proponent and the Contractor shall install temporary desert tortoise exclusion fencing (U.S. Fish and Wildlife Service, 2009) and exclusion gates around work sites and Authorized Biologists and qualified biologists (supervised by Authorized Biologists) will monitor during active construction. Fence material should consist of one-inch horizontal by two-inch vertical, galvanized welded wire, thirty-six inches in width, and five-to-six-foot steel T-posts should be used for fence construction. T-posts should be driven approximately twenty-four inches below the ground surface and spaced approximately ten feet apart with fencing material buried a minimum of twelve inches below the ground surface, leaving twenty-two to twenty-four inches above the ground. Distances between T-posts should not be more than ten feet apart. In situations where burying the fence is not practical due to substrate that cannot be dug, the fence material should be bent at a ninety-degree angle to produce a lower section approximately fourteen inches wide, which will be placed parallel to, and in direct contact with, the ground surface. Soil and cobble should then be placed on top of the lower, bent section of fence material (U.S. Fish and Wildlife Service, 2009). Desert tortoise-proof gates shall be installed to allow construction access while preventing desert tortoise from entering the fenced area.

C19: The Action Proponent shall ensure that pre-construction clearance surveys are conducted for desert tortoises prior to land and vegetation clearing for construction of the new water treatment plant, water wells, water transmission lines, utilities, and infrastructure improvements (including Roadwork). The Action Proponent shall ensure that surveys are conducted for the desert tortoise in accordance with *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) and the Biological Opinions (U.S. Fish and Wildlife Service 2002, 2017), and reported to Environmental Affairs.

C20: During pre-construction clearance surveys, Authorized Biologists and qualified biologists working under their direct supervision (hereafter "biologists") will inspect desert tortoise and mammal burrows for desert tortoises. If occupied burrows (hereafter "active") are found, the biologists will flag and avoid all burrows until further action is approved by Environmental Affairs. When marking and flagging burrows, biologists will follow the guidance in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009).

C21: During clearance surveys, the biologists will only confirm a burrow as inactive if close inspection can locate all interior edges of the burrow and the end is clearly visible (and there is no plug in the burrow), such that any hidden chambers are not missed. All burrows encountered will be inspected with the use of mirrors, flashlights, and fiber optic cameras when necessary.

C22: During clearance surveys, if an inactive burrow is near the active construction site but in no danger of disturbance, the biologists will block the burrow entrance with rocks to prevent future use of the burrow and flag it for avoidance. After completion of construction activities, the biologists will remove materials used to block and flag the burrow. The Action Proponent or Contractor will excavate all inactive burrows that construction activities are likely to disturb. The Action Proponent and Contractor will follow the guidance provided in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) when blocking, marking, and collapsing all burrows.

C23: If construction activities cannot avoid an active burrow, an Authorized Biologist will excavate the burrow according to the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009). Authorized Biologists shall relocate all desert tortoises removed from active burrows to the nearest unoccupied natural burrow or an artificially constructed burrow, or place it under a shrub if it can be released within

specified temperature limits (U.S. Fish and Wildlife Service, 2009). The biologists on site will ensure that further construction activities do not disrupt the release location.

C24: The construction phase will require biological monitoring by an Authorized Biologist. The Authorized Biologist will work with the construction supervisor to minimize disturbance. The Action Proponent and Contractor will ensure that an adequate number of qualified biologists, under direct supervision of at least one Authorized Biologist, are present to monitor all aspects of the activities that have the potential to injure or kill desert tortoises (construction or maintenance of plant, evaporation ponds, wells, water lines and utilities, plus the improvements of access roads). Authorized Biologists and qualified biologists will have the authority to halt construction activities if they locate a desert tortoise in the construction area. The Action Proponent will cease all construction activity if they identify a desert tortoise within a construction area following initial clearance surveys. Construction activities will not resume until an Authorized Biologist has marked the desert tortoise and moved it to a safe location. All tortoise observations and movements are to be reported to Environmental Affairs daily, and take shall be reported immediately to Environmental Affairs.

C25: The Action Proponent will ensure that only Authorized Biologists handle desert tortoises or their eggs except in circumstances where a desert tortoise is in immediate danger of injury and mortality. Use of Authorized Biologists and qualified biologists will be in accordance with the most recent USFWS guidance (U.S. Fish and Wildlife Service 2008, 2017). The Action Proponent will ensure that biologists do not perform specialized handling activities (e.g., transmitter placement, health assessments, or blood collection) for which they are not specifically authorized by the USFWS.

C26: If handling of desert tortoise and their eggs is necessary during construction, Authorized Biologists will comply with the protocols outlined in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) unless otherwise authorized by Environmental Affairs. When performing tasks where tools and equipment may come in contact with desert tortoises, the Action Proponent will ensure that Authorized Biologists disinfect all tools via USFWS disease prevention protocols (U.S. Fish and Wildlife Service, 2013), or most recent USFWS guidance.

C27: The Action Proponent will ensure that if desert tortoises must be handled, it will only be done so when air temperature, measured at two inches above the ground (shaded bulb), does not exceed 95°F during the handling session. If air temperature exceeds 95°F during handling or processing, desert tortoises will be shaded in an environment where the ambient air temperatures do not exceed 91°F. Authorized Biologists will not release desert tortoises until the air temperature at the release site has declined to below 95°F and is expected to remain below 95°F for the remainder of that day.

C28: The Action Proponent will ensure that desert tortoises that show clinical signs of disease will not be translocated or otherwise moved. If the Authorized Biologist or Contractor locate a desert tortoise that must be moved, and it has signs of upper respiratory tract disease, they will quarantine this individual and contact Environmental Affairs to determine appropriate disposition of the animal.

C29: The Action Proponent will ensure that construction personnel immediately report to an Authorized Biologist any desert tortoises that are within or immediately adjacent to construction activities where the desert tortoise may be in harm's way.

C30: During construction in areas that are not fenced with desert tortoise exclusion fencing, an Authorized Biologist or qualified biologists under direct Authorized Biologist supervision will check open trenches at least two times a day, in the morning and evening, throughout the duration of construction. If midday temperatures are likely to be above 95°F, one of these checks will occur one to two hours prior to the forecasted high temperature. The Action Proponent will leave open trenches only if they are temporarily fenced (exclusion fence) or covered to exclude desert tortoises. If a desert tortoise is found

in an open trench, construction will halt and an Authorized Biologist will be contacted immediately to move the desert tortoise to a safe location. Biologists and contractors will inspect open trenches for desert tortoises prior to filling.

C31: During construction and operation in areas that are not fenced with desert tortoise exclusion fencing, Authorized Biologists, qualified biologists, and construction crews will check under parked vehicles prior to equipment and vehicle mobilization to ensure that desert tortoises have not sought shade beneath vehicles. If a desert tortoise is found under a vehicle, the vehicle must stay parked until the Authorized Biologist has moved the desert tortoise to a safe location. If an Authorized Biologist is not on-site and a desert tortoise is found under a vehicle, the driver will need to wait until Environmental Affairs moves the tortoise.

C32: If construction activities occur during the recognized avian breeding season (generally February 1 through September 30), construction shall occur in accordance with the MBTA to avoid impacts to nesting migratory birds potentially occurring within the project area. Specifically, a contracted qualified biologist shall check the proposed project area for nests (in trees [including tree cavities], shrubs, and on the ground) before implementing construction activities. If the biologist finds an active nest (or nest cavity), construction workers shall not disturb the nest or adjacent areas until the biologist determines the nest is no longer in use. An appropriately sized non-disturbance buffer will be placed around the nest until the biologist determines that young have successfully fledged and are no longer dependent upon the nest.

C33: Biological monitoring will evaluate the presence of common ravens during construction and operation and shall follow the management recommendations outlined in the Raven Monitoring, Management, and Control Plan. If common ravens are identified perching, roosting, or nesting on building materials, equipment, waste piles, or other construction debris, the biologist may deploy hazing or other management techniques to discourage use.

C34: During construction activities, specifically grading, there will be potential for animals to be unearthed, providing a food subsidy for scavengers and thereby resulting in increased attraction of common ravens to the project footprint. Daily monitoring of the construction site as well as access roads will be conducted to expedite proper disposal of food subsidies. Biologists assisting with monitoring efforts will be contacted immediately if any roadkill is detected by any personnel, and a biologist shall remove it immediately unless it is a desert tortoise. If the roadkill is a desert tortoise, construction shall halt until Environmental Affairs investigates the site and authorizes construction to resume.

C35: Nesting birds: If construction occurs during the bird breeding season (generally February 1 through September 30), surveys shall be conducted no more than three days prior to the start of construction to determine if active nest sites for any avian species protected under the federal MBTA occur within the ROI. If work is conducted outside of this time frame, then no preconstruction surveys are necessary. If an active nest (defined as a bird building a nest, sitting on a nest, carrying food to young, etc.) is found, then the following buffers may apply: 500 feet for raptors and 300 feet for all other bird species.

C36: Burrowing owl: Surveys shall be conducted within the ROI seven to fourteen days prior to the start of Project implementation, regardless of the time of year. If surveys are conducted during the nesting season (February 1 through September 30) and burrowing owls are determined to be nesting on or within the 100-foot buffer, an appropriate buffer (500 feet, or as MBTA updates indicate) shall be provided to the burrowing owl nest. If a buffer cannot be easily marked or maintained, such as (1) when flagging the perimeter of the buffer is not feasible (no vegetation and hard ground); or (2) when a burrow is in the immediate vicinity of a disturbance area that cannot be realigned, such as an established access route like a main supply route, then the active burrow within the project footprint should be staked with a wooden three-to-four-foot stake tied at the top with bright flagging. Project construction shall not be permitted

within the buffer until the young have fledged and left the burrow, or a qualified biologist is present and able to determine that the Project activity shall not harm any burrowing owls. If surveys are conducted during the nonbreeding season, and a burrowing owl is detected, a buffer shall be placed around the occupied burrow and the Navy shall be contacted to determine if the owl can be passively relocated via a one-way door. A biologist will be present throughout construction to ensure impacts to burrowing owls are minimized and the species does not occupy the project footprint.

C37: Weed Management – The purpose of weed management is to prevent the introduction of any new weeds and the spread of existing weeds as a result of project construction. To prevent the spread of weeds through vehicular sources, Trackclean™ or other methods of vehicle cleaning shall be used for vehicles entering and exiting the construction area. Project vehicles shall be cleaned at a commercial facility prior to transport to the project. If needed, only weed-free straw, hay bales, and seeds for erosion control and sediment barriers shall be used.

C38: Avoid Wildlife Pitfalls and Entrapment – If located outside of desert tortoise exclusion fencing, all trenches, pipes, and culverts shall be inspected at the end of each work day to ensure all potential but empty wildlife pitfalls have been backfilled, sloped at a three to one ratio at the ends to provide wildlife escape ramps, or completely covered to prevent wildlife access. Such pitfalls should be inspected mid- to late-morning for desert tortoises or other wildlife to avoid their take by overheating. Should a desert tortoise, migratory bird, or any special-status species become trapped, an Authorized Biologist (for tortoises) or a qualified biologist (other species) shall remove and relocate the animal. All trenches, pits, or other excavations shall be inspected for desert tortoise, and any special-status species by an Authorized Biologist or qualified biologist (dependent on species observed) prior to filling. Both ends of all pipes and culverts stored within desert tortoise habitat shall be capped to prevent entry by burrowing owl, desert kit fox, desert tortoise, or herpetofauna.

C39: Desert kit fox and other special-status mammal species: Surveys shall be conducted within the ROI seven to fourteen days prior to the start of construction. Prior to construction, potential desert kit fox burrows within the ROI shall be mapped as part of preconstruction surveys, and qualified biologists shall determine whether the burrows are occupied (through the use of tracking stations or wildlife cameras). If occupied burrows are found within the project footprint, desert kit fox must be allowed to leave on their own, but if this is not possible, they must be passively relocated (through one-way doors) out of the burrows and the burrows collapsed. Passive relocation cannot occur while young are in the burrow and still dependent upon their parents, and must be avoided from March 1 through August 31.

Post Construction (PC) phase activities

PC3: Due to the long-term nature of the Project, a Desert Tortoise Education Program shall be required for all personnel entering the training area, such as construction, operation, and maintenance personnel, including those driving transport trucks for chemicals and waste removal. As part of the education program the Action Proponent will inform operations personnel of their responsibility to halt, stay at scene, and report any form of injury or mortality of desert tortoises to Environmental Affairs.

PC4: The Raven Monitoring, Management, and Control Plan will be continued in order to monitor and minimize raven effects to desert tortoise, and any adaptive management measures will be implemented via Public Works Division (PWD) and EA cooperation.

4.2.3 Alternative 2

The primary difference between Alternative 1 and Alternative 2 is that Alternative 2 would use a different groundwater treatment process than Alternative 1. Alternative 2 would include the same construction, maintenance, and operation processes as Alternative 1. As such, impacts to biological resources under

Alternative 2 would be the same as Alternative 1. Therefore, the implementation of Alternative 2, with the implementation of the minimization, mitigation, and monitoring measures listed above in Section 4.2.2.6 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact biological resources.

4.3 CULTURAL RESOURCES

4.3.1 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to cultural resources. Therefore, implementation of the No-Action Alternative would not significantly impact cultural resources.

4.3.2 Alternative 1 (Proposed Action)

4.3.2.1 Construction

None of the twenty-three previously recorded sites identified during the records review are within the Alternative 1 area of potential effects, the closest (site CA-SDI-7586) being located approximately 575 feet to the south of the proposed road improvements. Although Alternative 1 would potentially affect the fourteen isolated finds within the Area of Potential Effect during construction, these isolated finds are evaluated as ineligible for the NRHP. Therefore, pending concurrence with the evaluations under the Section 106 consultation, the implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.3.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact cultural resources.

4.3.2.2 Operations and Maintenance

All post-construction operations and maintenance activities would be confined to the footprint of the permanent impact areas, and no NRHP eligible sites are within this area. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.3.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact cultural resources.

4.3.2.3 Minimization, Mitigation, and Monitoring Measures

The following minimization, mitigation, and monitoring measure supports the conclusion that implementation of Alternative 1 would not significantly impact cultural resources.

Construction (C) phase activities

C40: During ground disturbance activities, the Action Proponent and Contractor must stop work and immediately notify Environmental Affairs Natural Cultural Resources Officer if prehistoric artifacts, or clusters of more than ten historic-period artifacts that are known, or suspected to be, fifty years old or older, are discovered. Under no conditions of inadvertent discovery are crews allowed to resume work until cleared by Environmental Affairs Natural Cultural Resources Officer.

C41: During ground disturbance activities, the Action Proponent and Contractor will apply the Combat Center's standard inadvertent discovery procedures and will use an archaeological monitor during any ground disturbing activities associated with the undertaking. Furthermore, the Action Proponent and Contractor will provide access to the site throughout the life of the construction project to any observer the Twenty-Nine Palms Band of Mission Indians wishes to send.

4.3.3 Alternative 2

The primary difference between Alternative 1 and Alternative 2 is that Alternative 2 would use a different groundwater treatment process than Alternative 1. Alternative 2 would include the same construction, maintenance, and operation processes as Alternative 1. As such, impacts to cultural resources under Alternative 2 would be the same as Alternative 1. Therefore, implementation of Alternative 2, with the implementation of the minimization, mitigation, and monitoring measures listed above in Section 4.3.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact cultural resources.

4.4 WATER RESOURCES

4.4.1 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to baseline water resources. Therefore, implementation of the No-Action Alternative would not significantly impact water resources. Baseline water resources conditions, as described in Section 3.4 (Affected Environment, Water Resources) would remain unchanged. Therefore, groundwater resources would continue to be depleted in the Surprise Springs Subbasin, and the Combat Center's primary drinking water supply would continue to degrade and exceed the State's drinking water standards.

4.4.2 Alternative 1 (Proposed Action)

4.4.2.1 Construction

Water quality and hydrology resources could be affected if implementation of the proposed alternative fails to properly control runoff during or after construction. Surface water and groundwater quality are therefore evaluated with respect to possible releases of pollutants and erosion-induced sedimentation. Construction activities associated with Alternative 1 could have the potential to impact water quality through the release of pollutants, such as sediment, soil stabilization residues, oil and grease, and trash and debris.

Construction activities associated with Alternative 1 would be subject to applicable stormwater regulatory requirements and standards (e.g., Combat Center Stormwater Management Plan, Combat Center Spill Prevention, Control, and Countermeasures Plan) to avoid or minimize potential impacts of stormwater runoff, soil erosion, sedimentation, and contamination of stormwater runoff during construction. Construction best management practices that reduce erosion and subsequent sediment transport (e.g., silt fence, fiber rolls, sandbag barrier, gravel bag berm, drainage inlet protection) would be implemented during construction activities in compliance with the Combat Center Stormwater Management Plan. A SWPPP would be developed and implemented during construction that would identify the sources of pollutants that may affect the quality of stormwater and would include construction site best management practices to control erosion and minimize pollutants (e.g., sedimentation/siltation) in runoff. Erosion and sediment controls identified in the SWPPP would provide for controls that reduce the amount of soil disturbance, minimize erosion and sediment transport, and avoid pollutants from site runoff during construction.

Construction activities associated with Alternative 1 could have the potential to impact groundwater quality; however, runoff is not expected to reach groundwater due to the impermeability of the Combat Center's (Mainside area) clay soil (Zec and Battelle, 2016a). In addition, geotechnical studies would be required before beginning excavation and grading, which would include evaluating groundwater depth. Site excavation and grading plans would be designed to minimize impacts to groundwater. Furthermore, proper well construction methods (e.g., rotary drilling methods) would be used to minimize groundwater

impacts during drilling activities. Groundwater quality would not be expected to decrease compared to existing conditions during construction of Alternative 1.

Compliance with applicable regulatory requirements would minimize pollutants in runoff that would impact groundwater quality. Therefore, implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.4.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact water resources.

4.4.2.2 Operations and Maintenance

The proposed permanent ground disturbance under Alternative 1 is approximately 69.25 acres (Table 2-1), which would include impervious surfaces, groundwater wells, supply pipelines, landscaping, roads, and other similar features. Development under Alternative 1 would increase the amount of impervious surface area, such as new building rooftops and paved areas. Permanent water quality and hydromodification impacts may occur as a result of an increase in impervious surface and an associated increase in stormwater runoff volume. Increases in the amount of impervious surfaces could also result in the accumulation, exposure, and transport of additional pollutants, such as sediment, oil and grease, metals, nutrients, and trash and debris. Runoff during storm events and non-stormwater flows could transport these pollutants and potentially impact surface water quality if not properly managed. However, mandatory post-construction practices would be implemented and maintained to substantially reduce stormwater pollution and prevent significant water quality degradation as required by applicable regulations. A variety of design safeguards and structural/non-structural best management practices would be required and implemented before and during construction and continuing through the post-construction operational phase in compliance with the Combat Center's Stormwater Management Plan and site design characteristics.

Post-construction impacts to groundwater could occur as a result of increased accumulation and transport of pollutants to groundwater; however, stormwater runoff is not expected to reach groundwater due to the impermeability of the Combat Center's (Mainside area) clay soil (Zec and Battelle, 2016a). In addition, the evaporation ponds would be lined and equipped with leak prevention and detection systems to prevent any discharge to groundwater. Any increases in impervious surfaces could also affect groundwater quantity by relocating or reducing any stormwater infiltration and groundwater recharge rates, although groundwater recharge via precipitation in this region is negligible (Li & Martin, 2011). Therefore, groundwater quality or quantity are not expected to decrease compared to existing conditions with implementation of Alternative 1.

In addition, implementation of Alternative 1 could alter existing drainage patterns as a result of increased impervious area, thereby increasing hydromodification effects and potential flooding during heavy storm events. Alternative 1 would be required to maintain pre-development hydrology in compliance with enforced hydromodification requirements as referenced in the Combat Center's Stormwater Management Plan to ensure post-development stormwater runoff does not exceed the pre-development flow and duration to control increased stormwater flows, flooding, and erosion. Low Impact Development (LID) designs serve to attenuate peak flows associated with increased development and impervious surface while simultaneously reducing the volume of stormwater runoff discharged, thereby avoiding potential adverse hydromodification and flooding impacts. These best management practices and project design elements would also reduce pollutant loads and promote any groundwater recharge that may occur.

Alternative 1 would implement LID in site design (as required) and incorporate natural stormwater quality treatment measures (e.g., retention and detention basins, infiltration strips, porous paving) that reduce,

treat, infiltrate, and manage stormwater runoff and promote groundwater recharge in compliance with Section 438 of the Energy Independence and Security Act (42 USC section 17094) and the Department of the Navy's LID Policy for Stormwater Management Memorandum (U.S. Department of the Navy, 2007).

Compliance with applicable regulatory requirements and guidance documents (e.g., Combat Center's Stormwater Management Plan, Construction General Permit, Energy Independence and Security Act Section) would minimize pollutants in runoff that would impact groundwater quality and would require that pre-development hydrology be maintained after construction is completed. As such, runoff rates, volumes, and pollutants associated with post-construction operations and maintenance of Alternative 1 would be properly controlled through LID, site design, and treatment-control best management practices. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.4.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact water resources.

4.4.2.3 Minimization, Mitigation, and Monitoring Measures

The following minimization, mitigation, and monitoring measures support the conclusion that implementation of Alternative 1 would not significantly impact water resources.

Planning (P) Phase activities

P7: The Action Proponent and Contractor shall ensure any project disturbing one or more acres of soil submits a SWPPP in accordance with the Combat Center Storm Water Management Plan. The Action Proponent and Contractor shall ensure Storm Water Management Plans are submitted to Environmental Affairs Water Resources Manager for review a minimum of twenty-one working days prior to the commencement of work. Environmental Affairs is solely responsible for reviewing, providing comments, and approving SWPPP and Erosion Control Plans (do not submit to the State). The Action Proponent and Contractor shall ensure work does not commence until the SWPPP or Erosion Control Plan has been approved by Environmental Affairs. The Environmental Affairs point of contact is Mr. Chris Elliott, at (760) 830-7883.

P8: The Action Proponent shall develop a Drinking Water Monitoring Plan that discusses sampling methods and the method used to calculate maximum contaminant level, maximum required daily loads, and treatment techniques. Provide this report to PWD and Environmental Affairs for review and concurrence prior to implementation.

Design (D) phase activities

D3: The new water treatment plant, water wells, and infrastructure improvements shall comply with Unified Facilities Criteria (UFC) Code 3-210-10N, Section 2-2.2 Maximum Extent Technically Feasible. The following Low Impact Development exemptions may be applicable:

6. Site has high groundwater table, underground facilities, or utilities.
7. Soil infiltration capacity is limited.
8. Site is too small to infiltrate significant volume.
9. Non-potable water demand (irrigation, toilets, wash-water, etc.) is too small to warrant water harvesting and reuse system.
10. These exemptions prohibit the use and implementation of Low Impact Development at this site.

The Environmental Affairs point of contact is Mr. Chris Elliott, at (760) 830-7883.

D4: The new water treatment plant, water wells, and infrastructure improvements shall be designed so that they do not increase downstream flooding risks by substantially increasing peak runoff volumes.

Designs shall consider, but not be limited to, increasing the size of local flood control sites serving the project area or by including infiltration strips, or porous paving in designs for parking areas or other sites. Detention/retention basins are not recommended due to possible attraction of desert tortoise predators such as the common raven.

D5: The design shall incorporate drainage swale designs that direct stormwater runoff or irrigation runoff away from the structures or the top of the slopes to control drainage facilities. No stormwater shall be allowed to discharge over the top of a cut or fill slope.

D6: The Action Proponent shall ensure that the new water wells are designed in accordance with the California Code of Regulations Title 22, Chapter 16, Article 4, Section 64560 and County of San Bernardino requirements.

D7: The Action Proponent shall ensure that all facilities are planned in coordination with Environmental Affairs and include the necessary containment structures, wash stations, or water treatment facilities. Design shall meet UFC, Federal, State, Local & MCAGCC requirements.

D8: The Designer of Record shall ensure that new and existing water mains are constructed in accordance with all applicable California's Code of Regulations Related to Drinking Water (Titles 17 and 22), including Sections 64570 and 64572, which among other things, requires maintaining a ten-foot horizontal separation from sewage lines.

D9: The Designer of Record shall ensure that project-related activities are in accordance with the Combat Center's Energy Sustainability Strategy and all applicable Executive Orders for water conservation.

Construction (C) phase activities

C8: The Construction Contractor Proper shall conduct geotechnical studies before beginning excavation and grading to evaluate groundwater depth and shall use proper well construction methods (i.e., rotary drilling methods) to minimize impacts to groundwater.

C42: The Action Proponent and Contractor shall ensure that Facility Engineering and Acquisition Division does not close any projects that have stormwater requirements or permits without written consent from Environmental Affairs Water Resources Manager. The Environmental Affairs point of contact is Mr. Chris Elliott at (760) 830-7883.

C43: The Action Proponent and Contractor shall ensure that the Contractor adheres to installation's policies on irrigation and water conservation measures. The Action Proponent and Contractor shall ensure the project adheres to Combat Center Bulletin 5090.

C44: Minimize Standing Water – Water applied for dust abatement shall be the minimal amount needed to meet safety and air quality standards to avoid the formation of puddles, which may attract wildlife to the project. In particular, desert tortoises and other special-status wildlife species may be attracted to the project if water is sprayed onto the access roads and construction areas. Therefore, any water that is applied to roads and construction areas shall be the minimal amount necessary, and a qualified biologist shall be present after water application to ensure that no special-status wildlife species and their predators are attracted to the water. No standing water shall be permitted on the site.

C45: Water from new wells will be sampled at least once prior to treatment and analyzed for volatile organic compounds.

C46: The Action Proponent and Contractor shall ensure that any storm water runoff from construction site is controlled/released to proper storm water channels and clear of any contaminates. SWPPP's Best Management Practices (BMPs) will be followed.

C47: Action Proponent shall ensure that no water, waste stream, or other materials are discharged into storm channels without written pre-approval from the Environmental Affairs Water Resources Manager.

Post Construction (PC) phase activities

PC5: The Action Proponent shall implement post-construction BMPs to reduce stormwater pollution and prevent water quality degradation as required by MCAGCC's Stormwater Management Plan.

4.4.3 Alternative 2

The primary difference between Alternative 1 and Alternative 2 is that Alternative 2 would use a different groundwater treatment process than Alternative 1. Alternative 2 would include the same construction, maintenance, and operation processes as Alternative 1. As such, impacts to water resources under Alternative 2 would be the same as Alternative 1. Therefore, implementation of Alternative 2, with the implementation of the minimization, mitigation, and monitoring measures listed above in Section 4.4.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact water resources.

4.5 AIR QUALITY

4.5.1 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to baseline air quality. Therefore, implementation of the No-Action Alternative would not significantly impact air quality.

4.5.2 Alternative 1 (Proposed Action)

4.5.2.1 Construction

Temporary air emission would occur from the use of construction equipment and the disturbance of soils. This includes emissions resulting from the combustion of fossil fuel-powered equipment as well as fugitive dust emissions (particulate matter with particles less than or equal to ten micrometers in diameter [PM_{10}]) from earth-moving activities and the operation of equipment on bare soil. Although construction activities for the project are expected to take eighteen months, for purposes of this analysis, it was assumed that all construction activities would occur within a twelve-month period. This approach combines eighteen months' worth of construction emissions into a twelve-month period, which allows for a simplified, comprehensive, and deliberately overreaching comparison against the *de minimis* annual thresholds. Roadwork and other ground disturbance shall take every reasonable precaution to minimize fugitive dust emissions from wrecking, excavation, grading, clearing of land, and solid waste disposal operations.

Table 4-2 and Table 4-3 summarize the estimated emissions from construction activities for Alternative 1. Construction equipment emissions were calculated using the California Emissions Estimator Model. Fugitive dust emissions were calculated using the 1.2-tons per acre month.

Best management practices would be employed to regulate fugitive dust emissions of particulate matter (PM_{10} and $PM_{2.5}$), including watering of unpaved roads and active grading sites three times per day, reducing vehicle speed to fifteen miles per hour on unpaved roads, suspending grading activities in the event that winds exceed twenty-five miles per hour, and replacing ground cover in graded areas. These activities have been taken into account in the emissions analysis. The watering of the project site during earth-moving activities is expected to have an associated reduction in PM_{10} emissions of 61 percent, according to the California Emissions Estimator Model.

Table 4-2: Criteria Pollutant Emissions from Construction Activities versus *De Minimis* Thresholds

Component	Emissions (tons/year)					
	CO	VOCs[1]	NO_x[1]	SO_x	PM_{10}	$PM_{2.5}$
Construction Emissions						
Construction Equipment & Vehicles	13.41	2.29	22.75	0.02	1.27	1.19
Fugitive Dust	-	-	-	-	73.32	12.94
Total Annual Emissions	**13.41**	**2.29**	**22.75**	**0.02**	**74.59**	**14.13**
De Minimis Threshold[2]	**100**	**25**	**25**	**100**	**100**	**100**
Exceeds De Minimis Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

[1]Volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) are precursors to the formation of O_3

[2]Source: (Mojave Desert Air Quality Management District, 2017)

Notes: CO = carbon monoxide, VOC = volatile organic compounds, NO_x = nitrogen oxides, SO_x = sulfur oxides, PM_{10} = suspended particulate matter less than or equal to 10 micrometers in diameter, $PM_{2.5}$ = fine particulate matter less than or equal to 2.5 micrometers in diameter.

Table 4-3: Greenhouse Gas Emissions from Construction Activities

Component	Emissions (metric tons/year)		
	CO_2	CH_4	CO_2e
Construction Emissions			
Construction Equipment & Vehicles	1,404	0.37	1,413

Notes: CO_2 = carbon dioxide, CH_4 = methane, CO_2e = carbon dioxide equivalent

As shown in Table 4-2, construction emissions would not exceed *de minimis* levels. In addition, implementation of Alternative 1 would not produce greenhouse gases within the "Rule of Reason" (Table 4-3). Therefore, implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.5.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact air quality.

4.5.2.2 Operations and Maintenance

Although operation of the water treatment plant would be automated, the water treatment plant may be manned twenty-four hours a day. This means that six four-wheel vehicles would travel along the road every day. In addition, fuel deliveries, chemical deliveries, and waste pickups would add approximately 102 trips per year. These trips contribute to fugitive dust and Carbon Monoxide emissions. Energy for the water treatment plant would come from grid power and a 500-kilovolt diesel emergency generator, which would result in emissions associated with combustion of fossil fuels. This generator would be operated in compliance with California and local district requirements.

Operation of the production wells would also be automated. Although the proposed well sites would not be manned, maintenance would occur regularly. The two well sites without emergency generators are expected to require maintenance twelve times per year, while the well site with an emergency generator is estimated to require maintenance up to twenty-four times per year. These thirty-six annual trips would contribute to fugitive dust and Carbon Monoxide emissions. A summary of the equipment and emissions associated with the operation of the water treatment plant and production wells are outlined in Table 4-4 and Table 4-5.

Table 4-4: Criteria Pollutant Emissions from Operations and Maintenance Activities versus *De Minimis* Thresholds

Component	Emissions (tons/year)					
	CO	VOCs[1]	NO_x	SO_x[1]	PM_{10}	$PM_{2.5}$
Operations and Maintenance Emissions						
Water Treatment Plant	1.7270	0.3352	3.9720	0.0047	0.1422	0.1320
Production Wells	0.5680	0.1170	1.2574	0.0008	0.0664	0.0180
Total Annual Emissions	**2.2950**	**0.4522**	**5.2294**	**0.0055**	**0.2086**	**0.1500**
De Minimis Threshold[2]	**100**	**25**	**25**	**100**	**100**	**100**
Exceeds De Minimis Threshold?	No	No	No	No	No	No

[1]VOCs and NO_x are precursors to the formation of O_3 (ozone).
[2]Source: (Mojave Desert Air Quality Management District, 2017)
Notes: CO = carbon monoxide, VOC = volatile organic compounds, NO_x = nitrogen oxides, SO_x = sulfur oxides, PM_{10} = suspended particulate matter less than or equal to 10 micrometers in diameter, $PM_{2.5}$ = fine particulate matter less than or equal to 2.5 micrometers in diameter.

Table 4-5: Greenhouse Gas Emissions from Operations and Maintenance Activities

Scenario/Activity	Emissions (metric tons/year)			
	CO_2	CH_4	N_2O	CO_2e
Operation and Maintenance Emissions				
Water Treatment Plant	1.54	0.00	0.01	4.25
Production Wells	0.16	0.00	0.00	0.42
Total Annual Emissions	1.70	0.00	0.01	4.67

Notes: CO_2 = carbon dioxide, CH_4 = methane, N_2O = nitrous oxide, CO_2e = carbon dioxide equivalent

In addition, the generator would be operated in compliance with California and local district requirements. Emissions from the operation of the facility would not exceed *de minimis* or significance levels. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed in Section 4.1.3.1 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact air quality.

4.5.2.3 Minimization, Mitigation, and Monitoring Measures

The following minimization, mitigation, and monitoring measures support the conclusion that implementation of Alternative 1 would not significantly impact air quality.

Construction (C) phase activities

C9: The Construction Contractor shall ensure that all disturbed slopes or other graded features are properly stabilized. The construction shall be phased to minimize disturbed ground, exposed area, and sediment runoff/fugitive dust potential.

C48: The Construction Contractor shall employ dust abatement measures to minimize fugitive dust emissions during construction. These measures may include watering or the application of a commercial polymer-based soil stabilizer product to the laydown and staging areas to semi-permanently eliminate dust emissions. The Construction Contractor shall obtain Environmental Affairs' approval prior to the use or application of commercial polymer-based soil stabilizer products. The Contractor will apply dust abatement measures in compliance with Mojave Desert Air Quality Management District (MDAQMD) Rule

403. To do so, the Contractor shall designate personnel to monitor the dust control program and to increase dust suppression measures (e.g., watering or application of polymer-based soil stabilizer), as necessary, to minimize the generation of dust.

C49: The Action Proponent shall ensure that the Contractor ensures that fugitive dust from any transport, handling, construction, or storage activity does not remain visible in the atmosphere beyond the project or worksite footprint. The Action Proponent shall take every reasonable precaution to minimize fugitive dust emissions from wrecking, excavation, grading, clearing of land, and solid waste disposal operations. Mojave Desert Air Quality Management District Rule 403 applies.

C50: The Action Proponent shall ensure that the Mojave Desert Air Quality Management District is notified if any rental registered equipment unit is used in this district for more than five days. California Air Resources Board Portable Equipment Registration Program Section 2459 of Article 5 (Title 13) of the California Code of Regulations applies. The Action Proponent or the owner/operator shall ensure that the district is notified via electronic mail, in writing, facsimile, or by telephone, within two working days of commencing operations. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480.

C51: The Action Proponent shall ensure that the Contractor adheres to the emission limits for new engines, as per Title 17 California Code of Regulations Section 93115. If the generator is a non-tactical stationary or portable stand-by or prime engine, the following requirements apply: Tier 4, unless otherwise approved by the Mojave Desert Air Quality Management District, California Air Resources Board, or Environmental Affairs Air Resources Manager.

C52: The Action Proponent shall ensure that the Contractor ensures all paints, coatings, adhesives, and solvents use/applications follow the Mojave Desert Air Quality Management District's Usage of Solvent Rule 442, Architectural Coating Rule 1113, Metal Parts and Products Coating Operations Rule 1115, and the Automotive Coating Rule 1116 to limit the quantity of volatile organic compounds. A daily log shall be maintained of the volatile organic compounds used or emitted. The log shall contain at least the following: type of equipment for application, type of material, manufacturer of material, quantity of each coating, solvent used, and its volatile organic compounds content (volatile organic compounds must be in pounds per gallon or grams per liter). Records shall be submitted to the Environmental Affairs Air Resources Office.

C53: The Action Proponent shall ensure non-tactical equipment with a manufacturer's maximum continuous rating of fifty brake horsepower or greater are required to be permitted by the Mojave Desert Air Quality Management District or registered in the California Air Resources Board Portable Equipment Registration Program. If the equipment will eventually be handed over to the government, all Mojave Desert Air Quality Management District permit applications shall be processed or approved through the Environmental Affairs Air Resources Manager. If Contractor owned or leased, all permits or Portable Equipment Registration Program registration stickers must be displayed on equipment and ensure compliance with all permit conditions. No equipment shall be placed into operation until Mojave Desert Air Quality Management District permits or California Air Resources Board Portable Equipment Registration Program registration stickers are obtained. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480.

C54: The Action Proponent shall ensure that the Contractor ensures that the refrigerant being used in the air conditioning unit is a non-chlorofluorocarbon or hydrofluorochlorocarbon. The Action Proponent and Contractor shall take all necessary precautions (e.g., proper training, training certifications, and equipment) to ensure that no refrigerants are released to the atmosphere. In the event that refrigerants are released, the Contractor shall immediately notify Environmental Affairs Air Resources Manager of all

refrigerant releases and estimated amount of release. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480.

C55: The Action Proponent shall ensure that the Contractor provides the following information to Environmental Affairs Air Resources Manager to register the equipment on the Refrigerant Management Inventory prior to being placed into service: equipment specifications (type, manufacture, model, model year, and serial numbers), installation date, refrigerant type, refrigerant charge (pounds), leak detection device (if applicable), location description (to include building number and floor plan of refrigerant placement), and system function. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480.

C56: All stockpiled material will use dust control measures (e.g., cover, hydroseed) and will be stored in a manner that shall prevent runoff in the event of overwatering of the site or a storm event.

4.5.3 Alternative 2

The primary difference between Alternative 1 and Alternative 2 is that Alternative 2 would use a different groundwater treatment process than Alternative 1. Alternative 2 would include the same construction, maintenance, and operation processes as Alternative 1. Impacts to air quality under Alternative 2 would be the same as Alternative 1. Therefore, implementation of Alternative 2, with the implementation of the minimization, mitigation, and monitoring measures listed above in Section 4.5.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact air quality.

4.6 PUBLIC HEALTH AND SAFETY

4.6.1 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur. Therefore, implementation of the No-Action Alternative would not significantly impact the baseline public health and safety conditions; however, the limited water supply of the Surprise Springs Subbasin would continue to be a health and safety concern.

4.6.2 Alternative 1 (Proposed Action)

All project-related activities would occur within the Combat Center on the Combat Center's Sandhill Training Area, which is generally not accessible to the public. In addition, all non-military, project-related activities would comply with applicable Occupational Safety and Health Administration standards.

4.6.2.1 Construction

All project-related activities would comply with Executive Order 13834, *Efficient Federal Operations*. The primary health and safety risk associated with construction-related activities would be from an accidental spill of hazardous wastes or materials. The construction contractor would prepare a SWPPP that would include best management practices and procedures to respond to and clean up accidental spills. All hazardous and regulated wastes, materials, and substances generated during construction would be collected, characterized, labeled, stored, transported, and disposed of in accordance with applicable federal, state, and local laws and regulations as well as the installation's standard operating procedures (U.S. Marine Corps, 2005; U.S. Marine Corps, 2015). This includes ensuring that all waste handlers have the appropriate personal protective equipment and that accurate records are kept. Any petroleum-contaminated soil would be treated at the Combat Center's contaminated soil staging area or disposed of in accordance with federal, state, and local regulations. In addition, the Construction Contractor would be responsible for preparing a Construction and Debris Plan prior to beginning construction. The method

used for managing drill cuttings would depend on the drilling mud. Where possible, oil-based drilling muds and synthetic-based drilling muds would be recovered or recycled in accordance with federal, state, and local regulations. Additionally, as stated previously, all project-related construction activities would occur within the Combat Center on the Combat Center's Sandhill Training Area, which is generally not accessible to the public. Therefore, implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.6.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact public health and safety.

4.6.2.2 Operations and Maintenance

Following construction activities, Alternative 1 would enhance public health and safety by ensuring a reliable potable water supply for the Combat Center. To reduce the volume of wastewater, the extracted water would be sent back for treatment and use. Meanwhile, the thickened solids would be sent to the residue drying beds and ultimately disposed of in accordance with federal, state, and local regulations. Should any of the solids require additional treatment, treatment may be in the form of a potable water treatment polymer that would aid in the separation of these solids so that the water can be decanted and sent back through the water treatment process.

The reverse osmosis process would also generate a reject (or concentrate) stream. This reject stream would be disposed of in the evaporation ponds. The evaporation ponds would be sized to allow for at least thirty years of operation prior to requiring salt removal and disposal in accordance with federal, state, and local regulations. Because of the possible corrosivity of the reject and the concentrate of various contaminants and salts removed or rejected by the reverse osmosis system, this waste could potentially be considered hazardous waste. Sandy soils have a high degree of permeation, which could allow a containment leak to travel deep underground into the strata; however, the evaporation ponds would be lined and equipped with leak prevention and detection equipment to minimize this risk.

The drinking water treatment plant and one of the water wells would include a diesel stand-by or emergency generator. These generators would have tanks with secondary containment systems and leak detectors because of their remote locations. Any hazardous wastes generated at the drinking water treatment plant would be collected and stored in a satellite accumulation area at or near the point of generation prior to being transported to a permitted ninety-day transportation, storage, and disposal facility at the Combat Center.

All activities would comply with the Combat Center's Fire Regulations and Instruction Manual (Combat Center Fire Department, 2016) and the Wildfire Management Plan. The turnaround areas around the well sites could also potentially act as a fire buffer if there were a wildfire. In addition, the facility would maintain Safety Data Sheets of all hazardous materials used at the facility, and emergency responses would comply with the procedures in those Safety Data Sheets. Additionally, similar to the construction-related activities, all project-related operations and maintenance activities would occur within the Combat Center on the Combat Center's Sandhill Training Area, which is generally not accessible to the public. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.6.2.3 and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact public health and safety.

4.6.2.3 Minimization, Mitigation, and Monitoring Measures

The following minimization, mitigation, and monitoring measures support the conclusion that implementation of Alternative 1 would not significantly impact public health and safety.

Planning (P) Phase activities

P9: The Contractor shall complete a Construction and Demolition Plan prior to start of work and submitted to the Solid Waste Manager, Environmental Affairs via the Field and External Affairs Division. The plan will capture the Contractor's estimated tonnage of construction and demolition waste that would be recycled or disposed.

Design (D) phase activities

D10: An area for the storage of hazardous waste shall be incorporated into the design documents.

Construction (C) phase activities

C57: The Contractor shall ensure that all construction personnel remain on the access roads analyzed herein when accessing the construction sites.

C58: Vehicles shall be restricted to existing roads/paths, parking areas, and authorized construction areas.

C59: The Action Proponent will post and enforce a twenty-mile-per-hour speed limit for Contractor and construction personnel on all roads within desert tortoise habitat.

C60: No pets shall be permitted at any time within the construction area.

C61: No holes shall be left exposed overnight or when the site is unattended. Any unattended holes must either be temporarily fenced or covered with plywood, sheet metal, or similar material.

C62: In the event that hazardous materials are found at the work site, including but not limited to underground storage tanks, burn pits, or any contaminated soils, the Contractor shall immediately stop work and notify both the Combat Center's PWD and Environmental Affairs.

C63: Implement structural and nonstructural programs (i.e., routine procedures or practices) to prohibit the storage of uncovered hazardous substances in outdoor areas.

C64: The proposed project sites may be on an inactive military range. The Action Proponent shall ensure that construction, repair, or maintenance personnel receive initial unexploded ordnance and dud briefing by the Combat Center's Explosive Ordnance Disposal (EOD) Section prior to construction activities. If any munitions and explosives of concern are discovered during construction, repair, and or maintenance activity, the Action Proponent shall ensure operations are ceased and EOD is notified. EOD's point of contact number is (760) 830-7112.

C65: Construction personnel shall remove all trash, especially food waste, from the site. To prevent attracting wildlife to the project site, all trash shall be contained in closed receptacles and removed on a regular basis to prevent it from overflowing. Trash bags shall not be stored in the open bed of pick-up trucks.

C66: Permanent or temporary relocation of pesticides, herbicides, and other hazardous materials and wastes shall be done in a manner that complies with the Combat Center's Integrated Contingency and Operations Plans.

C67: The Action Proponent and Contractor shall ensure that all portable toilets are staked or tied down to prevent spillage. Portable toilets may not be placed within twenty feet of any storm channel or natural wash.

C68: The Action Proponent and Contractor shall ensure that all paints, solvents, and equipment used in painting are handled per MCAGCC's State General Industrial Storm Water Permit/SWPPP and are not washed out on the ground.

C69: The Action Proponent and Contractor shall ensure that concrete washout containment is in place and is used. All dried concrete washout material shall be disposed of properly. Concrete washouts will not be dug into the ground. Concrete washouts will be built at/above grade per MCAGCC's SWPPP.

C70: The Action Proponent and Contractor shall ensure that petroleum, oil, lubricants, and toxic/hazardous materials are stored and handled in accordance with federal, state, county, Department of Defense, Department of the Navy, Marine Corps, and MCAGCC's environmental and natural resources requirements. Combat Center Order 5090.5A pertains. Environmental Affairs point of contact is Mr. Mike Elliott at (760) 830-7695.

C71: The Action Proponent shall ensure that Contractors operating aboard the installation for more than thirty days submit an Authorized Use List (AUL) containing a listing of all required hazardous materials for operations. The AUL will be submitted to the AUL Working Group Manager for review and approval prior to utilizing the hazardous materials aboard the installation. The point of contact is Mr. Keith Mohn at (760) 830-3746.

C72: The Action Proponent shall ensure that all hazardous material releases are reported to the Environmental Affairs Abatement Section. Environmental Affairs point of contact is Mr. Thomas Connors at 760-401-9841 and can be reached twenty-four hours a day. All documentation regarding spill releases and notifications will be conducted by the Environmental Affairs Abatement Section. Action Proponent and Contractor will not make any notifications to external agencies.

C73: The Action Proponent shall ensure that the Contractor uses a licensed hauler and temporary storage to have hazardous waste items manifested off-base. The Contractor shall coordinate the manifesting of hazardous waste with Environmental Affairs Hazardous Waste Management Section. Environmental Affairs point of contact is Mr. Pat Mills at (760) 830-5403.

C74: Oil-based drilling muds and synthetic-based drilling muds would be recovered or recycled in accordance with federal, state, and local regulations.

C75: Construction and Demolition Report will be completed upon completion of project submitted to the Solid Waste Manager, Environmental Affairs via the Field and External Affairs Division. The report will capture the Contractor's tonnage of construction and demolition waste that was recycled and or disposed.

4.6.3 Alternative 2

The primary difference between Alternative 1 and Alternative 2 is that Alternative 2 would use a different groundwater treatment process than Alternative 1. Alternative 2 would include the same construction, maintenance, and operation processes as Alternative 1. As such, impacts to public health and safety under Alternative 2 would be similar to Alternative 1. Therefore, implementation of Alternative 2, along with the implementation of the minimization, mitigation, and monitoring measures listed above in Section 4.6.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact public health and safety.

4.7 UTILITIES

4.7.1 No-Action Alternative

Under the No-Action Alternative, the Proposed Action would not occur, and there would be no change to existing utilities. Therefore, implementation of the No-Action Alternative would not significantly impact utilities.

4.7.2 Alternative 1 (Proposed Action)

4.7.2.1 Construction

Construction activities would not include the use of public utilities. All electricity would be provided through generator sets. Sanitary waste would be collected by portable toilets, and construction workers would be advised to bring their own drinking water. As such, there would be no increased demand on public utilities. Therefore, implementation of Alternative 1 proposed construction activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.7.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact utilities.

4.7.2.2 Operations and Maintenance

Following construction activities, the proposed facilities would use the Combat Center's existing utility services. The existing grid system has the capacity to handle the electrical draw for the treatment plant and water wells, and no changes should be required to these systems. The generators would be operated in compliance with California and the Local District's requirements. The capacity of all existing utilities would be verified during the project's planning and design stages. Neither the plant nor the wells would require natural gas lines. The drinking water treatment plant would also have its own sewage collection system/tank. This tank would be pumped by the Public Works Division or a contractor and the sewage would be disposed of in the installation's existing system. In addition, implementation of Alternative 1 would provide potable water to the Combat Center that meets the federal and State's safe drinking water requirements, enhancing the Combat Center's potable water supply. Although there would be an increase in the electrical draw and sewage generation for the operations and maintenance of the treatment plant and water wells, these increases would be within the installation's existing grid system capacity and sewage disposal capacity. Therefore, implementation of Alternative 1 proposed operations and maintenance activities, along with the minimization, mitigation, and monitoring measures listed below in Section 4.7.2.3 (Minimization, Mitigation, and Monitoring Measures) and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact utilities.

4.7.2.3 Minimization, Mitigation, and Monitoring Measures

The following minimization, mitigation, and monitoring measures support the conclusion that implementation of Alternative 1 would not significantly impact utilities.

Planning (P) Phase activities

P10: The Action Proponent or the Contractor shall verify that all existing utility services have adequate capacity.

P11: The Action Proponent and Contractor shall ensure compliance with California Code of Regulations Title 23; Chapter 16 Section 2636; Design, Construction, Installation, Testing, and Monitoring Requirements for Piping and Section 2666; Requirements for Underground Piping. The Environmental Affairs point of contact is Mr. Joe Cleek, at (760) 830-8361 or joe.cleek@usmc.mil.

P12: The Action Proponent shall submit this matrix with updated costs and a completed Minimization, Mitigation, and Monitoring Effectiveness Report to Environmental Affairs within thirty days of the Design Phase.

Design (D) Phase activities

D11: Lighting shall be designed to minimize upward light pollution, and shall be shielded to keep light away from adjacent natural habitat.

D12: The Action Proponent shall consider sustainability in the design phase by promoting building energy conservation, efficiency, and management; and by promoting sustainable acquisition and procurement. This includes ensuring that all new construction includes the incorporation of climate-resilient design and management elements. As of May 2018, Executive Order 13834 directs Federal agencies to manage their buildings, vehicles, and overall operations to optimize energy and environmental performance, reduce waste, and cut costs.

D13: The evaporation ponds shall be lined and equipped with leak prevention and detection equipment.

D14: Stand-by or emergency generator tanks in remote areas shall have secondary containment systems and leak detection equipment.

D15: Designs would comply with all applicable UFC, including, but not limited to, UFC 1-200-01 Department of Defense Building Code; UFC 3-230-01, Water Storage, Distribution, and Transmission; UFC 3-230-02, O&M: Water Supply Systems; UFC 3-240-13FN, Industrial Water Treatment Operation and Maintenance; UFC 3-250-09FA, Aggregate Surface Roads and Airfield Areas; UFC 3-310-04, Seismic Design for Buildings; and UFC 3-530-01, Design, Interior and Exterior Lighting Controls.

Construction (C) phase activities

C76: The Action Proponent and the Contractor shall place permanent signs promoting awareness of desert tortoises in key locations near the Project Area to encourage personnel not to stray off established access roads.

C77: The Action Proponent and Contractor shall ensure any fire hydrant and backflow device installed or removed are reported to the PWD Cross Connection Control Manager for addition or updated to the Combat Center's inventory. Information reported shall include: Location, Make, Model Number, Size, and Serial Number. All fire hydrant and backflow installations shall comply with California Code of Regulations Title 17, Chapter 5 and MCAGCC, MAGTFTC Cross Connection Control Plan.

C78: The Action Proponent and Contractor shall ensure any newly installed drinking water distribution reservoir or any distribution reservoir that has been taken out of service for repair or inspection shall be disinfected and sampled for bacteriological quality in accordance with California Code of Regulation Title 22, Chapter 15, Article 5, Section 64582. A copy of the bacteriological sampling results shall be submitted to Environmental Affairs Water Resources Manager for review and approval prior to the reservoir being placed into service.

C79: The Action Sponsor and contractor shall ensure any new or repaired well, or a well that has been out of operation for more than three months, are sampled for bacteriological quality prior to use in accordance with California Code of Regulation Title 22, Article 5, Section 64583. A copy of bacteriological sampling results shall be submitted to Environmental Affairs Water Resources Manager for review and approval prior to the well being placed into service.

C80: The Action Proponent and Contractor shall ensure new and existing water mains are constructed in accordance with the California Code of Regulations Title 22, Chapter 16, Article 4, Section 64572. Specifically, maintaining a ten foot horizontal separation from sewage lines.

C81: The Action Proponent and Contractor will ensure any use of MCAGCC, MAGTFTC water supply is protected with a properly certified backflow preventer (double check). MCAGCC, MAGTFTC no longer approves the use of air gap(s). California Code of Regulations Title 17, Chapter 5, Article 2 Section 7605 outlines backflow testing and usage requirements. All backflows must be tested per California Code of Regulations Title 17, Chapter 5, Article 2, Section 7605, and the results reported to Environmental Affairs

Water Resources Manager and MCAGCC, MAGTFTC Cross Connection Control manager prior to being placed into service.

C82: The Action Proponent and Contractor shall ensure that plant material used is drought tolerant and irrigation is conducted with a water-wise approach.

C83: The action Proponent shall ensure any flowing or flushing of fire hydrants is performed with the use of a diffuser to reduce erosion of surrounding soils.

C84: Overhead electrical poles shall have avian protection designed and installed.

C85: The Action Proponent and Contractor shall ensure the updated "As-Builts" are completed and submitted to PWD for any modifications to utilities. These changes shall be incorporated to geographic information systems as applicable.

C86: Because stand-by generators are required, the Contractor would be required to obtain an Authority to Construct permit from the MDAQMD before the construction of the proposed Military Construction project. The application package must be reviewed and approved by the Environmental Affairs Air Resources Manager before being submitted to the MDAQMD. Contact Environmental Affairs for Application Package details.

C87: The Action Proponent shall ensure that the Contractor ensures the aboveground storage tank system(s) are properly labeled and installed in accordance with National Fire Protection Association, California Fire Codes, and manufacturer's guidelines. All aboveground storage containment tanks shall have secondary containments and be in compliance with federal, state, and local regulations.

C88: The construction Contractor shall document the area that has been permanently stabilized by concrete or asphalt after construction. In accordance with MDAQMD Regulation 14 (1400-1404), Environmental Affairs may elect to apply for and register Emission Reduction Credits for this area, to bank for future potential use at the Combat Center.

4.7.3 Alternative 2

The primary difference between Alternative 1 and Alternative 2 is that Alternative 2 would use a different groundwater treatment process than Alternative 1. Alternative 2 would include the same construction, maintenance, and operation processes as Alternative 1. As such, impacts to utilities under Alternative 2 would be the same as Alternative 1. Therefore, implementation of Alternative 2, along with the implementation of the minimization, mitigation, and monitoring measures listed in Section 4.7.2.3 (Minimization, Mitigation, and Monitoring Measures) above and in Appendix C (Minimization, Mitigation, and Monitoring Implementation Plan), would not significantly impact utilities.

CHAPTER 5. CUMULATIVE IMPACTS

Cumulative impacts on environmental resources result from impacts of proposed actions combined with other past, present, and reasonably foreseeable actions, as defined in 40 CFR Section 1508.7. Cumulative effects analysis normally encompasses geographic boundaries beyond the immediate area of the proposed action, and a time frame including past actions and foreseeable actions, to capture these additional effects.

5.1 PAST, PRESENT, AND REASONABLY FORESEEABLE PROJECTS

Geographic distribution, intensity, duration, and historical effects of similar activities were considered when determining whether a particular activity may contribute cumulatively to the impacts of the Proposed Action. Past projects that are older than five years are not considered in the cumulative impacts analysis because these projects are considered part of the affected environment covered in Chapter 3 (Affected Environment). The following past and present projects were identified as potentially having cumulative impacts when combined with the Proposed Action:

- Ocotillo Marine Mart (GBIG, 2016)
- Adult Medical Care Clinic Replacement
- Construction, Operation, and Decommissioning of a Solar Photovoltaic System at the Combat Center (U.S. Department of the Navy and U.S. Marine Corps, 2015)
- Land Acquisition and Airspace Establishment to Support Large-Scale Marine Air Ground Task Force Live-Fire and Maneuver Training at the Combat Center (U.S. Marine Corps and U.S. Department of the Navy, 2016).
- Final Environmental Assessment for Ongoing Training Marine Corps Air Ground Combat Center, Twentynine Palms, California (U.S. Department of the Navy and U.S. Marine Corps, 2018)

Projects that may occur further into the future than Alternative 1 (Proposed Action) are not considered to meet the criteria of being reasonably foreseeable because they are highly uncertain. Therefore, reasonably foreseeable future actions are bounded by the present to the year 2023 (within five years of the Proposed Action). The Combat Center's proposed Microgrid Expansion Project (P-1232) is the only reasonably foreseeable project that was identified as having the potential to interact with the Proposed Action. Other activities and projects that do not have the potential to cumulatively interact with the Proposed Action are not addressed in this Environmental Assessment.

5.2 CUMULATIVE IMPACTS

Alternative 1 (Proposed Action) involves the construction and operation of a new drinking water treatment plant and three new water wells within the Deadman Subbasin, as well as ancillary infrastructure improvements within the Combat Center. As described in Chapter 4 (Environmental Consequences) of this EA, implementation of Alternative 1 would not result in significant adverse impacts. Each resource area was further evaluated for potential cumulative impacts associated with the Proposed Action in combination with other past, present, and reasonably foreseeable actions. It has been determined that implementation of Alternative 1 would not result in cumulatively significant impacts to geological resources, biological resources, water resources, air quality, public health and safety, or utilities. For example, since *de minimis* levels are based on a cumulative impacts analysis, it can be determined that the cumulative impacts of all past, present, and reasonably foreseeable future projects would not result in a significant impact within the Mojave Desert Air Basin. In addition, past, present, and reasonably foreseeable projects would be required to follow required policies and procedures to ensure that significant impacts to environmental resources are avoided, minimized, or mitigated to the extent

practicable. Therefore, implementation of Alternative 1 in conjunction with other past, present, or reasonably foreseeable projects would not result in significant cumulative impacts to environmental resources.

CHAPTER 6. LIST OF AGENCIES AND PERSONS CONTACTED

California State Historic Preservation Officer

CHAPTER 7. REFERENCES

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APPENDIX A: PUBLIC INVOLVEMENT

A.1 INTRODUCTION

The United States (U.S.) Marine Corps (USMC) conducted a public involvement process to provide the public the opportunity to participate in the project by submitting comments on the adequacy and accuracy of the Draft Environmental Assessment (EA). The purpose of the public involvement process is to notify and inform interested and potentially affected stakeholders and the general public about the Proposed Action and solicit their input on the environmental analysis. The National Environmental Policy Act (NEPA), and regulations for implementing NEPA as set forth by the Council on Environmental Quality (CEQ), requires federal agencies to make diligent efforts to involve stakeholders and tribes in the development of environmental documents and stipulates public involvement during various stages of the environmental review process (42 U.S. Code § 4321, as amended; CEQ Regulations for Implementing NEPA [40 Code of Federal Regulations Part 1500, as amended]).

A.2 Public Involvement Overview

The public participation process commenced with publication of a Notice of Availability (NOA) of the Public Draft EA in three local newspapers (*Hi-Desert Star*, *Desert Star Weekly*, and *The Desert Trail*); the NOA of the Draft EA was published once per week for 2 weeks during the public comment period for a total of six publications. The Draft EA was made available at three local libraries (the Twentynine Palms Branch Library, Yucca Valley Branch Library, and the Joshua Tree Branch Library, which are branches of the San Bernardino County Library) and online on the Marine Corps Air Ground Combat Center's (MCAGCC) website. No public meetings were held.

A.3 Timing and Methods of Comment Submittal

A 30-day public comment period provided an opportunity for government agencies, interest groups, and the general public to comment on the Draft EA. The Marine Corps advertised that comments should be provided to the EA Project Manager at NAVFAC Southwest. The public comment period began on 18 July 2018 and concluded on 17 August 2018. No public comments were received.

A.4 PROOF OF PUBLICATION

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
COUNTY OFRIVERSIDE

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years and not a party to or interested in the above-entitled matter. I am the agent of the publisher of the

Desert Star Weekly

a newspaper of general circulation, published weekly in the City of Desert Hot Springs, County of Riverside, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Riverside, State of California (Case #1206318), that the notice, of which the annexed is a printed copy has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit: July 18, 2018

I certify (or declare) under penalty of perjury that the following is true and correct.

Dated at Desert Hot Springs, California. Date: July 16, 2018

Mindy Salas
Signature

Desert Star Weekly

13-279 Palm Drive Suite 5
Desert Hot Springs, CA 92240 (760) 671-6604

PUBLIC NOTICE: NOTICE OF AVAILABILITY OF THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE CONSTRUCTION AND OPERATION OF A NEW DRINKING WATER TREATMENT PLANT AND ANCILLARY INFRASTRUCTURE IMPROVEMENTS AT THE MARINE AIR GROUND TASK FORCE TRAINING COMMAND, MARINE CORPS AIR GROUND COMBAT CENTER, TWENTYNINE PALMS, CA

In accordance with the National Environmental Policy Act (NEPA) of 1969, the United States Marine Corps (USMC) has prepared a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the construction and operation of a new drinking water treatment plant and ancillary infrastructure improvements at the Marine Air Ground Task Force Training Command/Marine Corps Air Ground Combat Center in Twentynine Palms, CA.

The 30-day public comment period will begin July 18, 2018, and end Aug. 16, 2018. All comments must be postmarked or received by **Aug. 16, 2018**, for consideration in the development of the EA.

Comments may be submitted by email to benjamin.t.lawrence@navy.mil, or by mail to: Naval Facilities Engineering Command Southwest, Attention: Mr. Benjamin Lawrence, Project Manager, 937 North Harbor Drive, Building 1, 3rd Floor, San Diego, CA 92132-0058.

The Draft EA can be downloaded from the project website at: **www.29palms.marines.mil/Staff/G4InstallationsandLogistics/EnvironmentalAffairs.aspx**. The document is also available at the following public libraries: Twentynine Palms, Yucca Valley, and Joshua Tree.

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
COUNTY OFRIVERSIDE

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years and not a party to or interested in the above-entitled matter. I am the agent of the publisher of the

Desert Star Weekly

a newspaper of general circulation, published weekly in the City of Desert Hot Springs, County of Riverside, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Riverside, State of California (Case #1206318), that the notice, of which the annexed is a printed copy has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit: July 18, 25, 2018

I certify (or declare) under penalty of perjury that the following is true and correct.

Dated at Desert Hot Springs, California. Date: July 25, 2018

Mindy Salas
Signature

Desert Star Weekly

13-279 Palm Drive Suite 5
Desert Hot Springs, CA 92240 (760) 671-6604

PUBLIC NOTICE: NOTICE OF AVAILABILITY OF THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE CONSTRUCTION AND OPERATION OF A NEW DRINKING WATER TREATMENT PLANT AND ANCILLARY INFRASTRUCTURE IMPROVEMENTS AT THE MARINE AIR GROUND TASK FORCE TRAINING COMMAND, MARINE CORPS AIR GROUND COMBAT CENTER, TWENTYNINE PALMS, CA

In accordance with the National Environmental Policy Act (NEPA) of 1969, the United States Marine Corps (USMC) has prepared a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the construction and operation of a new drinking water treatment plant and ancillary infrastructure improvements at the Marine Air Ground Task Force Training Command/Marine Corps Air Ground Combat Center in Twentynine Palms, CA.

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PROOF OF PUBLICATION
(2015.5 C.C.P)

This space is for the County Clerk's Filing Stamp

STATE OF CALIFORNIA
County of San Bernardino

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the:

THE DESERT TRAIL

a newspaper of general circulation, printed and published **WEEKLY** in the City of **TWENTYNINE PALMS** County of San Bernardino, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California,

under the date of **November 11, 1938**.

Case Number 43099: that the notice, of which the annexed is printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of sad newspaper and not in supplement thereof on the following date(s), to-wit:

07/19, 07/26,
in the year 2018

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Date at: **TWENTYNINE PALMS**, California,
this **26TH** day of **JULY, 2018.**

Signature
ANAIS CARBONELL

PUBLIC NOTICE

PUBLIC NOTICE: NOTICE OF AVAILABILITY OF THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE CONSTRUCTION AND OPERATION OF A NEW DRINKING WATER TREATMENT PLANT AND ANCILLARY INFRASTRUCTURE IMPROVEMENTS AT THE MARINE AIR GROUND TASK FORCE TRAINING COMMAND, MARINE CORPS AIR GROUND COMBAT CENTER, TWENTYNINE PALMS, CA

In accordance with the National Environmental Policy Act (NEPA) of 1969, the United States Marine Corps (USMC) has prepared a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the construction and operation of a new drinking water treatment plant and ancillary infrastructure improvements at the Marine Air Ground Task Force Training Command/Marine Corps Air Ground Combat Center in Twentynine Palms, CA.

The 30-day public comment period will begin July 18, 2018, and end Aug. 16, 2018. All comments must be postmarked or received by **Aug. 16, 2018**, for consideration in the development of the EA.

Comments may be submitted by email to: benjamin.t.lawrence@navy.mil, or by mail to: Naval Facilities Engineering Command Southwest, Attention: Mr. Benjamin Lawrence, Project Manager, 937 North Harbor Drive, Building 1, 3rd Floor, San Diego, CA 92132-0058.

The Draft EA can be downloaded from the project website at: **www.29palms.marines.mil/Staff/G4InstallationsandLogistics/EnvironmentalAffairs.aspx.** The document is also available at the following public libraries: Twentynine Palms, Yucca Valley, and Joshua Tree.

(PUB: T. 7/19, 7/26/2018)

PROOF OF PUBLICATION
(2015.5 C.C.P)

This space is for the County Clerk's Filing Stamp

STATE OF CALIFORNIA
County of San Bernardino

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above- entitled matter. I am the principal clerk of the printer of the:

HI- DESERT STAR

a newspaper of general circulation, printed and published **BI-WEEKLY** in the City of **YUCCA VALLEY**, County of San Bernardino, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California,

under the date of **November 27, 1961.**

Case Number 107762: that the notice, of which the annexed is printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in supplement thereof on the following dates, to wit:

07/19, 07/26
in the year 2018

I certify (or declare) under penalty of perjury that the foregoing in true and correct.

Dated at: **YUCCA VALLEY**, California,
this **26TH** day of **JULY, 2018.**

Signature
ANAIS CARBONELL

PUBLIC NOTICE: NOTICE OF AVAILABILITY OF THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE CONSTRUCTION AND OPERATION OF A NEW DRINKING WATER TREATMENT PLANT AND ANCILLARY INFRASTRUCTURE IMPROVEMENTS AT THE MARINE AIR GROUND TASK FORCE TRAINING COMMAND, MARINE CORPS AIR GROUND COMBAT CENTER, TWENTYNINE PALMS, CA

In accordance with the National Environmental Policy Act (NEPA) of 1969, the United States Marine Corps (USMC) has prepared a Draft Environmental Assessment (EA) to evaluate potential environmental impacts associated with the construction and operation of a new drinking water treatment plant and ancillary infrastructure improvements at the Marine Air Ground Task Force Training Command/Marine Corps Air Ground Combat Center in Twentynine Palms, CA.

The 30-day public comment period will begin July 18, 2018, and end Aug. 16, 2018. All comments must be postmarked or received by **Aug. 16, 2018**, for consideration in the development of the EA.

Comments may be submitted by email to: benjamin.t.lawrence@navy.mil, or by mail to: Naval Facilities Engineering Command Southwest, Attention: Mr. Benjamin Lawrence, Project Manager, 937 North Harbor Drive, Building 1, 3rd Floor, San Diego, CA 92132-0058.

The Draft EA can be downloaded from the project website at: **.www.29palms.marines.mil/Staff/G4InstallationsandLogistics/EnvironmentalAffairs.aspx.** The document is also available at the following public libraries: Twentynine Palms, Yucca Valley, and Joshua Tree.

(PUB: S. 7/19, 7/26/2018)

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APPENDIX B: AGENCY CORRESPONDENCE

B.1 INTRODUCTION

As part of the NEPA process, the USMC consulted with the California State Historic Preservation Office under Section 106 of the National Historic Preservation Act. The USMC also consulted with eleven tribal governments or groups on the proposed undertaking, to include the Agua Caliente Band of Cahuilla Indians and the Twenty-nine Palms Band of Mission Indians.

UNITED STATES MARINE CORPS
MARINE AIR GROUND TASK FORCE TRAINING COMMAND
MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0116
MAY 30 2018

Ms. Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
1725 23rd St. #100
Sacramento, CA 95816

Attention: E. Carroll

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

The Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center (Combat Center) proposes to construct a drinking water treatment plant and three associated water wells along an existing road in the Sandhill Training Area, as depicted in Enclosure (1). The purpose of the Proposed Action is to ensure continued availability of safe, potable water for the Marines, civilian personnel, and residents aboard the installation, and to sustain the Combat Center's mission.

AREA OF POTENTIAL EFFECT

The Combat Center has defined the area of potential effect (APE) for the project as areas proposed for direct impact plus a 30-meter buffer, resulting in an APE of approximately 31.1 ha.

SITE IDENTIFICATION AND EVALUATION

The Combat Center's records search of the APE and a 1-km record search area produced 16 previous cultural resource surveys described in Enclosures (2-17). The Combat Center conducted project-specific surveys and 10 shovel test pits within the APE in 2017 and 2018 (2017/2018 Surveys), as described in Enclosure (18).

The 2017/2018 Surveys recorded one prehistoric and 13 historic isolates, but no archaeological sites, within the APE. Record search identified no isolates and no archaeological sites within the APE, and twenty archaeological sites within a 1-km record search buffer around the APE.

5090
ISD 12E/18-0116
MAY 30 2018

The record search also identified 20 sites in the 1-km search buffer. One site is eligible for the National Register of Historic Places, and 19 sites are undetermined as to their eligibility. Site records are contained in Enclosure (19).

EFFECTS DETERMINATION

The Combat Center seeks your concurrence with its finding of "No Historic Properties Affected" in accordance with the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR 800.4(d)(1).

CONTACT

Please contact Ms. Janelle Harrison at (760) 830-7641, or Mr. Walter Christensen at walter.christensen@usmc.mil or (760) 830-5200, with any questions on this matter.

Sincerely,

D. L. TRAN
Major, USMC
Director, Environmental Affairs

Enclosures:
1. Figure 1
2. ABR008
3. ABR009
4. ABR015
5. ABR017
6. ABR073
7. ABR090
8. ABR120
9. ABR121
10. CRR008
11. CRR015
12. CRR027
13. CRR079
14. CRR140
15. CRR158
16. CRR209
17. CRR245
18. CRR248
19. DPR Site Forms

2

State of California • Natural Resources Agency — Edmund G. Brown Jr., *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Lisa Ann L. Mangat, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

July 31, 2018

Reply In Reference To: USMC_2018_0606_001

Major D. L. Tran, Director
Environmental Affairs
Marine Corps Air Ground Combat Center
Box 788110
Twentynine Palms, CA 92278-8110

RE: Construction of a Drinking Water Treatment Plant in the Sandhill Training Area; (USMC 5090, ISD 12E/18-0116) Marine Corps Air Ground Combat Center, Twentynine Palms

Dear Major Tran:

The United States Marine Corps (USMC) is initiating consultation regarding their effort to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR Part 800.

To ensure continued availability of safe, potable water, the USMC are proposing to construct a drinking water treatment plant within the Sandhill Training Area at the Marine Corps Air Ground Combat Center (MCAGCC) in Twentynine Palms. Key elements of the proposed undertaking include:

- Construction of a new drinking water treatment plant, including a main plant, chemical storage and delivery areas, a parking lot, and evaporation ponds;
- Construction of a new water pipeline;
- Construction of three new water wells and improved access road;
- Improvements to the existing supply route and wells sites access road, all of which are dirt roads.

In support of their finding of no historic properties affected, the USMC provided a cultural resources assessment report prepared by AECOM (May 2018). A records search of the MCAGCC's cultural resources database identified: (1) no cultural resources within the APE, and (2) that 16 previous cultural resources surveys had been conducted (between 1992 – 2016) within a one-kilometer radius of the APE. Pedestrian surveys of the APE identified 27 isolated cultural resources and the USMC has determined that none of the isolates is eligible for listing on the National Register of Historic Places. The USMC did not request the SHPO to concur with their determination of ineligibility. Additionally, ten shovel test pits

Major D. L. Tran
July 31, 2018
Page **2** of **2**

USMC_2018_0606_001

(STPs) were excavated within the APE to identify any subsurface deposits. No cultural resources were recovered from any of the STPs.

Based on the results of its historic property identification efforts, the USMC determined that a finding of no historic properties affected is appropriate for the proposed undertaking and is requesting the SHPO's concurrence with this determination and with its definition of the APE. After reviewing the information provided, the SHPO offers the following comments:

1. Pursuant to 36 CFR Parts 800.4(a)(1) and 800.16(d), the SHPO has no objection to the USMC's definition of the APE for the entire 76.85 acre project area.

2. It is the SHPO's understanding that the USMC consulted with seven tribal governments or groups on the proposed undertaking and the Agua Caliente Band of Cahuilla Indians and the Twenty-nine Palms Band of Mission Indians (TPBMI) concurred with the USMC's finding of no historic properties affected. Notably, the TPBMI requested that a tribal archaeological monitor be present during ground disturbing activities associated with the proposed undertaking.

3. The SHPO recommends that the USMC accept the request from the TPBMI and include a Minimization, Mitigation, and Monitoring Measure that prescribes that a TPBMI's tribal archaeological monitor will be present during ground disturbing activities associated with the proposed undertaking.

4. Pursuant to 36 CFR Part 800.4(d)(1), the SHPO has no objection to the USMC's finding of no historic properties affected. Be advised that under certain circumstances, such as an unanticipated discovery or a change in project description, the USMC may have additional future responsibilities for this undertaking under 36 CFR Part 800.

If you have any questions or concerns, please contact Ed Carroll at (916) 445-7006 or via e-mail at Ed.Carroll@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

UNITED STATES MARINE CORPS
MARINE AIR GROUND TASK FORCE TRAINING COMMAND
MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0161
AUG 16 2018

Ms. Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
1725 23rd St. #100
Sacramento, CA 95816

Attention: E. Carroll

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

The Combat Center is in receipt of your letter dated July 31, 2018, regarding the construction of a drinking water treatment plant in the Sandhill training area. I appreciate your continued engagement with the Combat Center on our undertakings.

The Combat Center received a response letter from the Twenty-Nine Palms Band of Mission Indians identifying the "possibility of encountering inadvertent resources during the construction" despite surface inventory and subsurface sampling not revealing historic properties in the Area of Potential Effect (APE). Based on the high-density human habitation near the APE and the presence of isolates within the APE, this particular site has an "increased chance of encountering and impacting cultural resources that concern the Tribe."

The Combat Center will apply its standard inadvertent discovery procedures to this project, as it does for all construction projects. We accept the Tribe's recommendation to use an archaeological monitor during any ground disturbing activities associated with the undertaking. Further, we will provide access to the site throughout the life of the construction project to any observers the Tribe wishes to send.

Please contact Ms. Janelle Harrison at (760) 830-7641 with any further questions on this matter.

Sincerely,

RAY LUZIER
Deputy Director, EA

Copy to: EA

UNITED STATES MARINE CORPS
MARINE AIR GROUND TASK FORCE TRAINING COMMAND
MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0117
MAY 30 2018

Mr. Jeff L. Grubbe
Chairman
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive
Palm Springs, CA 92264

Attention: P. Garcia, THPO

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

The Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center (Combat Center) proposes to construct a drinking water treatment plant and three associated water wells along an existing road in the Sandhill Training Area, as depicted in Enclosure (1). The purpose of the Proposed Action is to ensure continued availability of safe, potable water for the Marines, civilian personnel, and residents aboard the installation, and to sustain the Combat Center's mission.

AREA OF POTENTIAL EFFECT

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EFFECTS DETERMINATION

The Combat Center seeks your concurrence with its finding of "No Historic Properties Affected" in accordance with the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR 800.4(d)(1).

CONTACT

Please contact Ms. Janelle Harrison at (760) 830-7641, or Mr. Walter Christensen at walter.christensen@usmc.mil or (760) 830-5200, with any questions on this matter.

Sincerely,

D. L. TRAN
Major, USMC
Director, Environmental Affairs

Enclosures:
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2

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

01-017-2018-004

July 12, 2018

[VIA EMAIL TO:janelle_h_99@yahoo.com]
Marine Corps
Ms. Janelle Harrison
Building 1418 Brown Rd.
Twentynine Palms, CA 92278

Re: Sandhill Drinking Water Treatment Plant

Dear Ms. Janelle Harrison,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Sandhill Drinking Water Treatment Plant project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*We concur with the agency's determination at this time. Please inform our office if there are changes to the scope of this project that may affect this determination.

*A map that clearly delineates the project area.

*Please email future consultation requests to ACBCI-THPO@aguacaliente.net.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6829. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Katie Croft

Katie Croft
Cultural Resources Manager
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE.NSN.GOV

UNITED STATES MARINE CORPS
MARINE AIR GROUND TASK FORCE TRAINING COMMAND
MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0124
MAY 30 2018

Ms. Amanda Vance
Chairperson
Augustine Band of Cahuilla Indians
84-481 Avenue 54
Coachella, CA 92236

Attention: H. Haines

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

The Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center (Combat Center) proposes to construct a drinking water treatment plant and three associated water wells along an existing road in the Sandhill Training Area, as depicted in Enclosure (1). The purpose of the Proposed Action is to ensure continued availability of safe, potable water for the Marines, civilian personnel, and residents aboard the installation, and to sustain the Combat Center's mission.

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CONTACT

Please contact Ms. Janelle Harrison at (760) 830-7641, or Mr. Walter Christensen at walter.christensen@usmc.mil or (760) 830-5200, with any questions on this matter.

Sincerely,

D. L. TRAN
Major, USMC
Director, Environmental Affairs

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AUGUSTINE BAND OF CAHUILLA INDIANS
PO Box 846 84-481 Avenue 54 Coachella CA 92236
Telephone: (760) 398-4722
Fax (760) 369-7161
Tribal Chairperson: Amanda Vance
Tribal Vice-Chairperson: William Vance
Tribal Secretary: Victoria Martin

June 6, 2018

D.L. Tran
United States Marine Corps
Marine Air Ground Task Force Training Command
Marine Corps Air Ground Combat Center
Box 788110
Twentynine Palms, CA 92278

RE: **Construction of a Drinking Water Treatment Plant in the Sandhill Training Area**

Dear Mr. Matlock-

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project, and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources has resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time we are unaware of specific cultural resources that may be affected by the proposed project. We encourage you to contact other Native American Tribes and individuals within the immediate vicinity of the project site that may have specific information concerning cultural resources that may be located in the area. We also encourage you to contract with a monitor who is qualified in Native American cultural resources identification and who is able to be present on-site full-time during the pre-construction and construction phase of the project. Please notify us immediately should you discover any cultural resources during the development of this project.

Very truly yours,

Victoria Martin

Victoria Martin
Tribal Secretary

UNITED STATES MARINE CORPS
MARINE AIR GROUND TASK FORCE TRAINING COMMAND
MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0126
MAY 30 2018

Mr. John Hames
Chairman
Cabazon Band of Mission Indians
84-245 Indio Springs Drive
Indio, CA 92201

Attention: J. Stapp, Director of Cultural Affairs

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

The Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center (Combat Center) proposes to construct a drinking water treatment plant and three associated water wells along an existing road in the Sandhill Training Area, as depicted in Enclosure (1). The purpose of the Proposed Action is to ensure continued availability of safe, potable water for the Marines, civilian personnel, and residents aboard the installation, and to sustain the Combat Center's mission.

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CONTACT

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Sincerely,

D. L. TRAN
Major, USMC
Director, Environmental Affairs

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BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0127

MAY 30 2018

Mr. Daniel Salgado
Chairman
Cahuilla Band of Mission Indians
Of the Cahuilla Reservation
5271 Highway 371
Anza, CA 92539

Attention: B. Esparza, Cultural Director

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

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CONTACT

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Major, USMC
Director, Environmental Affaire

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BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0118

MAY 30 2018

Mr. Charles F. Wood
Chairman
Chemehuevi Indian Tribe
1990 Palo Verde Drive
Havasu Lake, CA 92363

Attention: M. Leivas, Cultural Center Director

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

The Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center (Combat Center) proposes to construct a drinking water treatment plant and three associated water wells along an existing road in the Sandhill Training Area, as depicted in Enclosure (1). The purpose of the Proposed Action is to ensure continued availability of safe, potable water for the Marines, civilian personnel, and residents aboard the installation, and to sustain the Combat Center's mission.

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CONTACT

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Major, USMC
Director, Environmental Affairs

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MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0119
MAY 30 2018

Mr. Dennis Patch
Chairman
Colorado River Indian Tribes
26600 Mohave Road
Parker, AZ 85344

Attention: B. Etsitty, THPO

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

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BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0120

MAY 30 2018

Mr. Timothy Williams
Chairman
Fort Mojave Indian Tribe
500 Merriman Avenue
Needles, CA 92636

Attention: L. Otero

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

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MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0121
MAY 30 2018

Mr. Robert Martin
Chairman
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Attention: R. Huaute, THPO

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

The Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center (Combat Center) proposes to construct a drinking water treatment plant and three associated water wells along an existing road in the Sandhill Training Area, as depicted in Enclosure (1). The purpose of the Proposed Action is to ensure continued availability of safe, potable water for the Marines, civilian personnel, and residents aboard the installation, and to sustain the Combat Center's mission.

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MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0122

MAY 30 2018

Ms. Lynn Valbuena
Chairwoman
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346

Attention: L. Clauss

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

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The Combat Center seeks your concurrence with its finding of "No Historic Properties Affected" in accordance with the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR 800.4(d)(1).

CONTACT

Please contact Ms. Janelle Harrison at (760) 830-7641, or Mr. Walter Christensen at walter.christensen@usmc.mil or (760) 830-5200, with any questions on this matter.

Sincerely,

D. L. TRAN
Major, USMC
Director, Environmental Affairs

Enclosures:
1. Figure 1
2. ABR008
3. ABR009
4. ABR015
5. ABR017
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13. CRR079
14. CRR140
15. CRR158
16. CRR209
17. CRR245
18. CRR248
19. DPR Site Forms

2

Christensen CIV Walter J

From: Lee Clauss <LClauss@sanmanuel-nsn.gov>
Sent: Monday, August 20, 2018 11:28 AM
To: Christensen CIV Walter J
Cc: janelle_h_99@yahoo.com
Subject: [Non-DoD Source] RE: Construction of Drinking Water Treatment Plant in Sandhill Training Area

Good morning, Walter,

I regret to report your e-mail of July 13th was lost in our e-mail filtering system for the last month. I apologize that, as a result, I am just now able to read it and respond to it.

Thank you for providing that additional insight into CA-SBR-7613's nature, location, and the presence of a fence between it and the project area. Thanks also for that additional information about how flagged areas can be (and sometimes are) monitored during construction.

Based on this additional information, and provided the language previously provided by our office can be included in permits/plans/project documentation, San Manuel Band of Mission Indians' Cultural Resources Management (CRM) Department has no concerns with the project proceeding as planned and concurs with MCAGCC's finding of "No Historic Properties Affected."

If you should have any questions with regard to the content of this communication, please contact me at your convenience.

Respectfully,

Lee

Lee Clauss
DIRECTOR, CULTURAL RESOURCES MANAGEMENT
O: (909) 864-8933 x503248
Internal: 50-3248
M:(909) 633-5851
26569 Community Center Drive Highland California 92346

-----Original Message-----
From: Christensen CIV Walter J [mailto:walter.christensen@usmc.mil]
Sent: Friday, July 13, 2018 2:02 PM
To: Lee Clauss <LClauss@sanmanuel-nsn.gov>
Cc: janelle_h_99@yahoo.com
Subject: RE: Construction of Drinking Water Treatment Plant in Sandhill Training Area

Lee:

Sorry for the delayed respons; I was on leave last week and sick this week.

1

1. I'm assuming the site you are referencing is CA-SBR-7613. That was recorded in 1993 and consists of 2 white chert flakes, 1 jasper flake, and 1 piece of jasper angular debris. We don't believe this would be eligible for listing in the NRHP, and it is not in the APE. In addition, a twisted-strand fence stands between CA-SBR-7613 and the APE. The fence has not been identified for removal in the project and would act as a barrier preventing work on the project from unintentionally impacting the site.

For future projects we can flag no-go areas, just as we do for tortoise burrows or critical infrastructure. If a biomonitor is on the project (true for most of our construction work in the training areas) we can use them to help protect the flagged no-go area. The presence of the fence makes flagging moot for this particular project.

2. We usually spot-check significant construction activities (like this project) once using in-house personnel, with follow-ups if the contractor was non-compliant. Note also that our APE includes a buffer around work areas to account for mistakes by construction personnel. That helps ensure things like unplanned laydown areas, vehicle/equipment parking, or other unanticipated activities are kept away from cultural resources sites.

Walter J. Christensen
Head, Conservation Branch

Environmental Affairs
MAGTFTC, MCAGCC
Box 788110, Bldg 1418
Twentynine Palms CA 92278

(760)830-5200
walter.christensen@usmc.mil

> -----Original Message-----
> From: Lee Clauss [mailto:LClauss@sanmanuel-nsn.gov]
> Sent: Sunday, July 1, 2018 7:39 PM
> To: Christensen CIV Walter J <walter.christensen@usmc.mil>
> Subject: [Non-DoD Source] Construction of Drinking Water Treatment Plant in Sandhill Training Area
>
> Good evening, Walter,
>
>
>
> Thank you for contacting the San Manuel Band of Mission Indians (SMBMI) regarding the above-referenced project. SMBMI
> appreciates the opportunity to review the project documentation, which was received by our Cultural Resources Management (CRM)
> Department on June 5, 2018. The proposed project area exists within Serrano ancestral territory and, therefore, is of interest to the
> Tribe. Due to the nature of the project, the results of the records search and field survey, and given the CRM Department's present
> state of knowledge; however, SMBMI does not have any immediate tribal concerns to share with regard to the project's
> implementation, as planned, at this time.
>
>
>

> The CRM Department; however, does have two (2) questions regarding the information supplied in the correspondence and
> attachments received on June 5th:
>
>
>
> 1. There appears to be at least one archaeological site in close proximity to the 30-meter buffer indicated on the map. Will sites on
> the periphery of the buffer receive ESA protections during construction to help ensure encroachment and damage do not occur?
>
> 2. What kind of field presence does your branch/office typically provide in such instances where perhaps archaeological sites exist
> in relatively close proximity to the project APE?
>
>
>
> Once those additional questions are answered, SMBMI can then provide comment as to whether or not SMBMI concurs with
> MCAGCC's finding of "No Historic Properties Affected."
>
>
>
> Finally, the Tribe respectfully requests that the following language be included in the project/permit/plan documentation:
>
>
>
> "If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate
> vicinity (within a 100-foot buffer of the find) shall cease and Environmental Affairs notified immediately. In the event that Native
> American cultural resources (archaeological artifacts) are discovered during project activities, all work in the immediate vicinity of the
> find (within a 60-foot buffer) shall cease and Environmental Affairs notified immediately. Work on the other portions of the project
> outside of the buffered area may continue during this assessment period, at the discretion of the Installation Cultural Resources
> Manager." Also, please note internally within Environmental Affairs that SMBMI requests that, if and when artifacts, ancestors, or
> cultural deposits are found, the consulting tribes be contacted and made a part of the assessment and mitigation conversation, so that
> decisions are not made by agency staff and/or consulting CRM professionals without the benefit of tribal input.
>
>
>
> Once again, the San Manuel Band of Mission Indians appreciates the opportunity to comment on this proposed project. Once we
> receive the above-requested additional information, the CRM Department will then provide final comment. If you should have any
> questions with regard to this correspondence or the queries we have posed, please do not hesitate to contact me at your

3

> convenience, as I will be your Point of Contact (POC) for SMBMI with respect to this project.
>
>
>
> Best,
>
> Lee
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>
>
>
>
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>
>
> Lee Clauss
> DIRECTOR, CULTURAL RESOURCES MANAGEMENT
> O: (909) 864-8933 x503248
> Internal: 50-3248
> M: (909) 633-5851
> 26569 Community Center Drive, Highland California 92346
> <http://www.sanmanuel-nsn.gov>
>
>
>
>
>
> THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN
> INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. If the reader of this
> message is not the intended recipient or agent responsible for delivering the message to the intended recipient, you are hereby
> notified that any dissemination or copying of this communication is strictly prohibited. If you have received this electronic transmission
> in error, please delete it from your system without copying it and notify the sender by reply e-mail so that the email address record
> can be corrected. Thank You

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, CONFIDENTIAL AND EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW. If the reader of this message is not the intended recipient or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination or copying of this communication is strictly prohibited. If you have received this electronic transmission in error, please delete it from your system without copying it and notify the sender by reply e-mail so that the email address record can be corrected. Thank You

4

UNITED STATES MARINE CORPS
MARINE AIR GROUND TASK FORCE TRAINING COMMAND
MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0125
MAY 30 2018

Mr. Thomas Tortez
Chairman
Torres-Martinez Desert Cahuilla Indians
66-725 Martinez Street
Thermal, CA 92274

Attention: T. Tortez

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

The Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center (Combat Center) proposes to construct a drinking water treatment plant and three associated water wells along an existing road in the Sandhill Training Area, as depicted in Enclosure (1). The purpose of the Proposed Action is to ensure continued availability of safe, potable water for the Marines, civilian personnel, and residents aboard the installation, and to sustain the Combat Center's mission.

AREA OF POTENTIAL EFFECT

The Combat Center has defined the area of potential effect (APE) for the project as areas proposed for direct impact plus a 30-meter buffer, resulting in an APE of approximately 31.1 ha.

SITE IDENTIFICATION AND EVALUATION

The Combat Center's records search of the APE and a 1-km record search area produced 16 previous cultural resource surveys described in Enclosures (2-17). The Combat Center conducted project-specific surveys and 10 shovel test pits within the APE in 2017 and 2018 (2017/2018 Surveys), as described in Enclosure (18).

The 2017/2018 Surveys recorded one prehistoric and 13 historic isolates, but no archaeological sites, within the APE. Record search identified no isolates and no archaeological sites within the APE, and twenty archaeological sites within a 1-km record search buffer around the APE.

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MAY 30 2018

The record search also identified 20 sites in the 1-km search buffer. One site is eligible for the National Register of Historic Places, and 19 sites are undetermined as to their eligibility. Site records are contained in Enclosure (19).

EFFECTS DETERMINATION

The Combat Center seeks your concurrence with its finding of "No Historic Properties Affected" in accordance with the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR 800.4(d)(1).

CONTACT

Please contact Ms. Janelle Harrison at (760) 830-7641, or Mr. Walter Christensen at walter.christensen@usmc.mil or (760) 830-5200, with any questions on this matter.

Sincerely,

D. L. TRAN
Major, USMC
Director, Environmental Affairs

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2

UNITED STATES MARINE CORPS
MARINE AIR GROUND TASK FORCE TRAINING COMMAND
MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0123

MAY 30 2018

Mr. Darrell Mike
Chairman
Twenty-Nine Palms Band of Mission Indians
46200 Harrison Place
Coachella, CA 92236

Attention: A. Madrigal, THPO

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

UNDERTAKING

The Marine Air Ground Task Force Training Command, Marine Corps Air Ground Combat Center (Combat Center) proposes to construct a drinking water treatment plant and three associated water wells along an existing road in the Sandhill Training Area, as depicted in Enclosure (1). The purpose of the Proposed Action is to ensure continued availability of safe, potable water for the Marines, civilian personnel, and residents aboard the installation, and to sustain the Combat Center's mission.

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The Combat Center seeks your concurrence with its finding of "No Historic Properties Affected" in accordance with the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended, and its implementing regulation found at 36 CFR 800.4(d)(1).

CONTACT

Please contact Ms. Janelle Harrison at (760) 830-7641, or Mr. Walter Christensen at walter.christensen@usmc.mil or (760) 830-5200, with any questions on this matter.

Sincerely,

D. L. TRAN
Major, USMC
Director, Environmental Affairs

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2

TWENTY-NINE PALMS BAND OF MISSION INDIANS
46-200 Harrison Place . Coachella, California . 92236 . Ph. 760.863.2444 . Fax: 760.863.2449

July 6, 2018

Janelle Harrison
Environmental Affairs |UMSC MAGTFTC MCAGCC
Box 788110 Bldg. 1418
Twentynine Palms, CA 92278-8110

RE: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

Dear Ms. Harrison,

This letter is in regards to consultation in compliance with Section 106 of the NHPA (36 CFR 800) for a drinking water treatment plant in the Sandhill Training Area of the Marine Corps Air Ground Combat Center, located in Twentynine Palms. This proposed action includes the construction and operation of a drinking water treatment plant and ancillary infrastructure water wells and infrastructure improvements. While the Tribal Historic Preservation Office (THPO) is not aware of any additional archaeological/cultural sites or properties in the undertaking that pertain to the Twenty-Nine Palms Band of Mission Indians (Tribe), the undertaking is within the Chemehuevi Traditional Use Area (TUA). Additionally, the *Cultural Resources Investigation*, conducted by AECOM, indicated that 23 archaeological sites have been previously recorded within the records search area. During the survey, while there were no archaeological sites recorded, five prehistoric isolates and 22 historic isolates were recorded. While the *Cultural Resources Investigation* did not encounter subsurface deposits or resources that are eligible for the National Register of Historic Places (NRHP), there is still the possibility of encountering inadvertent resources during the construction processes that take place.

While the THPO concurs that there are no known historic properties affected, there is an increased chance of encountering and impacting cultural resources that concern the Tribe. While the Cultural Resources Investigation did not recommend archaeological monitoring, the THPO recommends an archaeological monitor during ground disturbance. The THPO requests Tribal Monitor's from the Twenty-Nine Palms Band of Mission Indians, especially the proposed water treatment plant area.

If you have any questions, please do not hesitate to contact the Tribal Historic Preservation Office at (760) 775-3259 or by email: TNPConsultation@29palmsbomi-nsn.gov.

Sincerely,

Anthony Madrigal, Jr.
Tribal Historic Preservation Officer

cc: Darrell Mike, Twenty-Nine Palms Tribal Chairman
Sarah Bliss, Twenty-Nine Palms Tribal Cultural Resources Manager
Walter Christensen, Environmental Affairs

UNITED STATES MARINE CORPS
MARINE AIR GROUND TASK FORCE TRAINING COMMAND
MARINE CORPS AIR GROUND COMBAT CENTER
BOX 788110
TWENTYNINE PALMS, CALIFORNIA 92278-8110

5090
ISD 12E/18-0160

AUG 16 2018

Mr. Darrell Mike
Chairman
Twenty-Nine Palms Band of Mission Indians
46200 Harrison Place
Coachella, CA 92236

Attention: A. Madrigal, THPO

SUBJECT: CONSTRUCTION OF A DRINKING WATER TREATMENT PLANT IN THE SANDHILL TRAINING AREA

The Combat Center is in receipt of your letter dated July 6, 2018, regarding the construction of a drinking water treatment plant in the Sandhill training area. I appreciate your continued engagement with the Combat Center on our undertakings.

The Combat Center acknowledges the "possibility of encountering inadvertent resources during the construction" despite surface inventory and subsurface sampling not revealing historic properties in the Area of Potential Effect (APE). Further, based on high-density human habitation near the APE and the presence of isolates within the APE, this particular site has an "increased chance of encountering and impacting cultural resources that concern the Tribe." The Combat Center will apply its standard inadvertent discovery procedures to this project, as it does for all construction projects. We accept the Tribe's recommendation to use an archaeological monitor during any ground disturbing activities associated with the undertaking. Further, we will provide access to the site throughout the life of the construction project to any observers the Tribe wishes to send.

Please contact Ms. Janelle Harrison at (760) 830-7641 with any further questions on this matter, or to arrange installation access for Tribal observers.

Sincerely,

RAY LOZIER
Deputy Director, EA

Copy to: EA

APPENDIX C: MINIMIZATION, MITIGATION, AND MONITORING IMPLEMENTATION PLAN

MILCON Project (P-192)
Marine Corps Air Ground Combat Center, Twentynine Palms, CA
Minimization, Mitigation, and Monitoring IMPLEMENTATION PLAN (MMMIP)

Key: SCM= Special Conservation Measure required to be implemented as part of the Proposed Action; PA= Pre-Award; P= Planning; D= Design; C= Construction; PC=Post Construction; N/A= Not Applicable

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
Pre-Award (PA) Phase Activities					
PA1	N/A	The conditions within this Environmental Assessment (EA) are incorporated into contracts. Contractors shall be required to implement the measures and will be strictly required to comply with them.	▪ Public Works Division (PWD) to relay requirements to the Contracting Agent ▪ Contracting Agent to Incorporate requirements	N/A	N/A
PA2	N/A	The Action Proponent shall ensure funds are available and programmed to fund implementation of standard conservation measures (SCM) and best management practice (BMP) commitments. If funding is not available, the action may not go forward until ▪ Funding is provided and the measures are implemented; ▪ The project can be modified or design to avoid the anticipated impact; or ▪ An Environmental Impact Statement (EIS) or Continuing Environmental Review Statement is prepared to document that a significant impact will occur due to a lack of funding for mitigation	▪ PWD to ensure funding is available	N/A	N/A
PA3	N/A	The Action Proponent shall submit this matrix with updated costs and a completed Minimization, Mitigation, and Monitoring Effectiveness Report (MMMER) to Environmental Affairs within thirty days of the Planning Phase.	▪ Action Proponent to submit to Environmental Affairs	N/A	N/A

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
Planning (P) Phase Activities					
P1	Geology	The Action Proponent or the Contractor shall conduct standard soil and geotechnical surveys and investigations to ensure site stability.	▪ Naval Facilities Engineering Command (NAVFAC) to ensure inclusion in the Plans and specifications ▪ Construction Contractor to confirm Architectural / Engineering report ▪ Field and External Affairs (FEAD) Twentynine Palms to confirm compliance	Military Construction (MILCON)	
P2	Biology - tortoise	The Action Proponent and the Contractor shall engage Marine Air Ground Combat Center (MCAGCC) Environmental Affairs for scheduling surveys and initial screening of Authorized Biologists for pre-construction clearance surveys and construction monitoring. Authorized Biologists for desert tortoise surveys and monitoring must be approved first by MCAGCC Environmental Affairs, who will request the U.S. Fish and Wildlife Service (USFWS) review at least thirty days prior to survey or monitor work. Surveys will follow the Desert Tortoise Field Manual (2009) or more recent guidance, include pre-construction clearance surveys for project plant (including exclusion fence installation), well site, water transmission line, utilities and roadwork, and will be conducted immediately prior to any construction activities related to the Project Action.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	
P3	Biology - tortoise	Prior to the onset of construction, the Action Proponent will appoint an official representative to oversee compliance with all protective measures, including tortoise awareness briefs, for the desert tortoise during construction, maintenance, and operation of the water treatment plant, water wells, and infrastructure improvements. This person will receive and investigate reports of non-compliance and will have the authority to stop all activities that may violate these measures, and will notify MCAGCC Environmental Affairs immediately of non-compliance or take of desert tortoise.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	
P4	Biology - tortoise	The Action Proponent shall coordinate with Environmental Affairs to implement a Desert Tortoise Education Program specific to the new water treatment plant, water wells, and	▪ NAVFAC to ensure inclusion in the Plans and specifications	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		infrastructure improvements for civilian personnel that work on the Combat Center during the construction and operation phase. All personnel shall go through the education program prior to construction activities and any associated activities that may affect desert tortoises. The desert tortoise education program will also assist in ensuring that no trash or roadkill will be made available that might attract desert tortoise predators, such as the common raven (*Corvus corax*).	▪ Construction Contractor to comply		
P5	Biology - tortoise	Environmental Affairs shall work with the Action Proponent and contractor on the raven plan, from selection of appropriate avian deterrent technology to implementation and monitoring in order to minimize raven effects to desert tortoise. This plan will address ways in which the new evaporation ponds and human presence may increase common raven numbers and how their effects on desert tortoise within the Project Area will be minimized through monitoring and management. The plan shall include methods for monitoring common ravens, measures to implement to deter common ravens including hazing, egg oiling, and adaptive management measures. The plan shall specify design features to be implemented to deter nesting and perching common ravens in the Project Area, which may include physical bird deterrents such as, but not limited to, bird spikes, Bird-B-Gones, WhirlyBirds, and other anti-perching devices.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	
P6	Biology	The Construction Contractor shall develop an Environmental Protection Plan that includes the requirements of the EA and the existing Biological Opinions (BOs) U.S. Fish and Wildlife Service 2002 & 2017).	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	
P7	Water	The Action Proponent and Contractor shall ensure any project disturbing one or more acres of soil submits a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Combat Center Storm Water Management Plan. The Action Proponent and Contractor shall ensure Storm Water Management Plans are submitted to Environmental Affairs Water Resources Manager for review a minimum of twenty-one working days prior to the commencement of work. Environmental Affairs is solely responsible for reviewing,	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		providing comments, and approving SWPPP and Erosion Control Plans (do not submit to the State). The Action Proponent and Contractor shall ensure work does not commence until the SWPPP or Erosion Control Plan has been approved by Environmental Affairs. Environmental Affairs point of contact is Mr. Chris Elliott, at (760) 830-7883.			
P8	Water	The Action Proponent shall develop a Drinking Water Monitoring Plan that discusses sampling methods and the method used to calculate maximum contaminant level, maximum required daily loads, and treatment techniques. Provide this report to PWD and Environmental Affairs for review and concurrence prior to implementation.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	
P9	Public health and safety	The Contractor shall complete a Construction and Demolition Plan prior to start of work, and submit it to the Solid Waste Manager, Environmental Affairs via the FEAD. The plan will capture the Contractor's estimated tonnage of construction and demolition waste that would be recycled or disposed.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	
P10	Utilities	The Action Proponent or the Contractor shall verify that all existing utility services have adequate capacity.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Designer of Record to provide calculations ▪ NAVFAC and PWD to confirm	MILCON	
P11	Utilities	The Action Proponent and Contractor shall ensure compliance with California Code of Regulations Title 23; Chapter 16 Section 2636; Design, Construction, Installation, Testing, and Monitoring Requirements for Piping and Section 2666; Requirements for Underground Piping. The Environmental Affairs point of contact is Mr. Joe Cleek, at (760) 830-8361 or joe.cleek@usmc.mil.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	
P12	Utilities	The Action Proponent shall submit this matrix with updated costs and a completed MMMER to Environmental Affairs within thirty days of the Design Phase.	▪ Submission via the FEAD to Environmental Affairs	N/A	N/A

ID #	Resource Area	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
Design (D) Phase Activities					
D1	Biology – birds	To comply with the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act, project design and any aboveground utility upgrades shall incorporate raptor protection measures, as applicable.	▪ NAVFAC to ensure inclusion in the Statement of Work (SOW)/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
D2	Biology – birds	An avian deterrent system would be employed at the evaporation ponds to prevent/minimize wildlife access to the ponds. While the exact design is to be determined, the deterrent system may involve active detection and deterrence (noise or lights) as well as anti-perching devices.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance		
D3	Water	The new water treatment plant, water wells, and infrastructure improvements shall comply with Unified Facilities Criteria (UFC) Code 3-210-10N, Section 2-2.2 Maximum Extent Technically Feasible. The following Low Impact Development exemptions may be applicable: Site has high groundwater table, underground facilities, or utilities. Soil infiltration capacity is limited. Site is too small to infiltrate significant volume. Non-potable water demand (irrigation, toilets, wash-water, etc.) is too small to warrant water harvesting and reuse system. These exemptions prohibit the use and implementation of Low Impact Development at this site. The Environmental Affairs point of contact is Mr. Chris Elliott, at (760) 830-7883.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
D4	Water	The new water treatment plant, water wells, and infrastructure improvements shall be designed so that they do not increase downstream flooding risks by substantially increasing peak runoff volumes. Designs shall consider, but not be limited to, increasing the size of local flood control sites serving the project area or by including infiltration strips, or porous paving in designs for parking areas or other sites. Detention/retention basins are not recommended due to possible attraction of	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Designer of Record to provide calculations ▪ NAVFAC to review calculations	MILCON	

ID #	Resource Area	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		desert tortoise predators such as the common raven.			
D5	Water	The design shall incorporate drainage swale designs that direct stormwater runoff or irrigation runoff away from the structures or the top of the slopes to control drainage facilities. No stormwater shall be allowed to discharge over the top of a cut or fill slope.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
D6	Water	The Action Proponent shall ensure that the new water wells are designed in accordance with the California Code of Regulations Title 22, Chapter 16, Article 4, Section 64560 and County of San Bernardino requirements.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
D7	Water	The Action Proponent shall ensure that all facilities are planned in coordination with Environmental Affairs and include the necessary containment structures, wash stations, or water treatment facilities. Design shall meet UFC, Federal, State, Local & MCAGCC requirements.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms and Environmental Affairs to confirm compliance	MILCON	D9
D8	Water	The Designer of Record shall ensure that new and existing water mains are constructed in accordance with all applicable California's Code of Regulations Related to Drinking Water (Titles 17 and 22), including Sections 64570 and 64572, which among other things, requires maintaining a ten-foot horizontal separation from sewage lines.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	D10
D9	Water	The Designer of Record shall ensure that project-related activities are in accordance with the Combat Center's Energy Sustainability Strategy and all applicable Executive Orders for water conservation.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	D11
D10	Public health and safety	An area for the storage of hazardous waste shall be incorporated into the design documents.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply	MILCON	

ID #	Resource Area	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
			▪ FEAD Twentynine Palms to confirm compliance		
D11	Utilities	Lighting shall be designed to minimize upward light pollution, and shall be shielded to keep light away from adjacent natural habitat.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
D12	Utilities	The Action Proponent shall consider sustainability in the design phase by promoting building energy conservation, efficiency, and management; and by promoting sustainable acquisition and procurement. This includes ensuring that all new construction includes the incorporation of climate-resilient design and management elements. As of May 2018, Executive Order 13834 directs Federal agencies to manage their buildings, vehicles, and overall operations to optimize energy and environmental performance, reduce waste, and cut costs.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	D12
D13	Utilities	The evaporation ponds shall be lined and equipped with leak prevention and detection equipment.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
D14	Utilities	Stand-by or emergency generator tanks in remote areas shall have secondary containment systems and leak detection equipment.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
D15	Utilities	Designs would comply with all applicable UFC, including, but not limited to, UFC 1-200-01 Department of Defense (DoD) Building Code; UFC 3-230-01, Water Storage, Distribution, and Transmission; UFC 3-230-02, O&M: Water Supply Systems; UFC 3-240-13FN, Industrial Water Treatment Operation and Maintenance; UFC 3-250-09FA, Aggregate Surface Roads and Airfield Areas; UFC 3-310-04, Seismic Design for Buildings; and UFC 3-530-01,	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		Design, Interior and Exterior Lighting Controls.			
D16	N/A	The Action Proponent shall submit this matrix with updated costs and completed MMMER to Environmental Affairs within thirty days of the Construction Phase.	▪ Submission via the FEAD to Environmental Affairs	N/A	
D17	N/A	The Action Proponent shall ensure that the design of the project takes place within the analyzed footprint of the EA. Should the scope or footprint of the project change, the Action Proponent shall contact Environmental Affairs National Environmental Policy Act (NEPA) Program Manager and an amendment to the NEPA documentation in the form of a Continuing Environmental Review Statement, a Supplemental EA, or an EIS may be required.	▪ NAVFAC to ensure inclusion in the SOW/Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
Construction (C) Phase Activities					
C1	N/A	The Action Proponent shall ensure that all design measures in the EA are carried forward during Construction.	▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C2	N/A	The Action Proponent shall ensure that the Construction Contractor's implemented Environmental Protection Plan includes the requirements of the EA and the BO.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C3	N/A	The Action Proponent shall ensure that the Contractor adheres to the Combat Center's Environmental Management System Manual (Combat Center Order [CCO] 5090.8).	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C4	N/A	The Action Proponent shall ensure that all Contractor personnel receive General Environmental Awareness training and all applicable Environmental Standard Operating Procedures training prior to the commencement of any work aboard the Combat Center. A copy of the training attendance roster shall be maintained in the Action Proponent's project folder and posted at the work site. See CCO 5090.2 and CCO 5090.8.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C5	N/A	Laydown areas and staging areas shall be inside the project boundary and be delineated on the grading plans.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C6	Geology	The Construction Contractor shall maintain fill slopes no steeper than two to one (horizontal to vertical). Proposed cut slopes shall be determined by soil characteristics. The Contractor shall assess the shear strength characteristics of the particular soil or rock conditions present for safe allowable slope heights.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C7	Geology	The Construction Contractor shall perform grading such that all identified compressible materials shall be removed and re-compacted, and fill soils shall be placed and compacted.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
			▪ FEAD Twentynine Palms to confirm compliance		
C8	Geology and Water	The Construction Contractor Proper shall conduct geotechnical studies before beginning excavation and grading to evaluate groundwater depth and shall use proper well construction methods (i.e., rotary drilling methods) to minimize impacts to groundwater.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C9	Geology and Air Quality	The Construction Contractor shall ensure that all disturbed slopes or other graded features are properly stabilized. The construction shall be phased to minimize disturbed ground, exposed area, and sediment runoff/fugitive dust potential.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C10	Geology and Waste	If contaminated soils are encountered, they shall be tested, used on site or disposed of within a Class I hazardous waste landfill, or disposed of in the lined portion of a Regional Water Quality Control Board-certified municipal landfill.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C11	Biology and Geology	Limit Disturbance Area – Project access shall be limited to existing access roads and project footprint, and will focus on previously disturbed areas to the extent feasible. The boundaries of all areas to be disturbed shall be clearly marked with stakes and flagging prior to construction activities. Crushing/removal of perennial, native vegetation in work areas shall be avoided to the maximum extent practicable, and only after pre-construction surveys for desert tortoise. Spoils and topsoil shall be stockpiled in either disturbed areas lacking native vegetation or areas that do not contain special-status plant species or sensitive vegetation communities. Parking areas and staging areas shall also be marked and shall be located in previously disturbed areas without native vegetation or special-status species habitat (such as along access roads).	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C12	Biology	Qualified Botanist: A qualified botanist is defined as a botanist who has been authorized by the Navy to conduct surveys, monitoring, or relocation/salvage	▪ NAVFAC to award and administer contract for biological services	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		activities for special-status plant species. A qualified botanist can also be a qualified biologist by satisfying the appropriate requirements.			
C13	Biology	Qualified Biologist: A qualified biologist is defined as a wildlife biologist who has been approved by the Navy to conduct surveys, monitoring, or relocation activities for nesting birds and other special-status wildlife species. For all field efforts involving desert tortoise (i.e. species specific surveys and monitoring), a qualified biologist will work under the direct supervision of an Authorized Biologist (defined under C17). A qualified biologist is not authorized to handle desert tortoise. A qualified biologist can also be a qualified botanist by satisfying appropriate requirements.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C14	Biology	Special-status plant species: Preconstruction surveys shall be conducted within the region of influence (ROI). For non-listed special-status species, if work is scheduled to be conducted within the appropriate blooming period for rare annual plants or habitat is present for special-status plant species, then a survey shall be conducted seven to fourteen days prior to the start of project construction. All special-status plants detected within the ROI shall be flagged or marked by the qualified botanist in a highly visible manner to be avoided to the greatest extent possible. The botanist shall flag Joshua trees identified within the project footprint, but not in the immediate work area, to avoid. Any Joshua trees that are within the area of ground disturbance shall be excavated and moved to an area of similar elevation and soil type, and replanted in the same orientation as they were originally facing.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C15	Biology	Vegetation Alliances: Impacts to plants within sensitive vegetation communities shall be minimized to the greatest extent feasible during construction. Care shall be taken to not cause root erosion (through grading or blading) or damage to sensitive vegetation community plant root systems. If necessary, a qualified biologist or botanist shall have flagged ahead of time (during preconstruction surveys for special-status plant species)	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ NAVFAC to award and administer	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		any particularly sensitive areas to be avoided. Additionally, a qualified biologist or botanist may be present during construction to help direct crews where to drive and stage vehicles to minimize impacts to sensitive vegetation communities to the greatest extent feasible.	contract for biological services		
C16	Biology	Non-federally listed rare plants: Special-status plant species within the ROI shall be marked via flagging, stakes, or other obvious means to be avoided during construction to the greatest extent feasible. If temporary grading of a previously undisturbed area is required (for example to level out sections of an area for temporary equipment staging), salvage of topsoil from the area shall be conducted in the undisturbed area prior to any grading. This soil shall be stockpiled and reapplied to the affected area after construction in the area has ceased.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C17	Biology – tortoise	Authorized Biologist: When requesting authorization of biologists to handle desert tortoises (hereafter referred to as Authorized Biologist), the Action Proponent will submit the credentials to the MCAGCC Environmental Affairs for review. Credentials must be submitted on USFWS Authorized Biologist Qualification Forms. Environmental Affairs will submit acceptable credentials, at least thirty days prior to the field need for the biologist, to the USFWS for final review and approval. For authorization of specialized handling activities (e.g., transmitter placement or health assessments), the Action Proponent will clearly define activities for which it is requesting authorization and provide credentials that are specific to those activities. These Authorized Biologists (i.e., a biologist authorized by the USFWS) will be on site at all times during construction to monitor and relocate desert tortoises if necessary and will supervise qualified biologists (defined under C13) assisting with desert tortoise field efforts (i.e. species specific surveys and monitoring) at all times.	▪ Environmental Affairs to submit qualifications	MILCON	
C18	Biology – tortoise	In areas known to support desert tortoises, the Action Proponent and the Contractor shall install temporary desert tortoise	▪ NAVFAC to ensure inclusion in the Plans and specifications	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
	and Utilities	exclusion fencing (U.S. Fish and Wildlife Service, 2009) and exclusion gates around work sites and Authorized Biologists and qualified biologists (supervised by Authorized Biologists) will monitor during active construction. Fence material should consist of one-inch horizontal by two-inch vertical, galvanized welded wire, thirty-six inches in width, and five-to-six-foot steel T-posts should be used for fence construction. T-posts should be driven approximately twenty-four inches below the ground surface and spaced approximately ten feet apart with fencing material buried a minimum of twelve inches below the ground surface, leaving twenty-two to twenty-four inches above the ground. Distances between T-posts should not be more than 10 feet apart. In situations where burying the fence is not practical due to substrate that cannot be dug, the fence material should be bent at a ninety-degree angle to produce a lower section approximately fourteen inches wide, which will be placed parallel to, and in direct contact with, the ground surface. Soil and cobble should then be placed on top of the lower, bent section of fence material (U.S. Fish and Wildlife Service, 2009). Desert tortoise-proof gates shall be installed to allow construction access while preventing desert tortoise from entering the fenced area.	▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance		
C19	Biology-tortoise	The Action Proponent shall ensure that pre-construction clearance surveys are conducted for desert tortoises prior to land and vegetation clearing for construction of the new water treatment plant, water wells, water transmission lines, utilities, and infrastructure improvements (including Roadwork). The Action Proponent shall ensure that surveys are conducted for the desert tortoise in accordance with *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) and the BOs (U.S. Fish and Wildlife Service, 2002, 2017), and reported to Environmental Affairs.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C20	Biology-tortoise	During pre-construction clearance surveys, Authorized Biologists and qualified biologists working under their direct supervision (hereafter “biologists”)	▪ NAVFAC to award and administer contract for biological services	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		will inspect desert tortoise and mammal burrows for desert tortoises. If occupied burrows (hereafter "active") are found, the biologists will flag and avoid all burrows until further action is approved by Environmental Affairs. When marking and flagging burrows, biologists will follow the guidance in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009).			
C21	Biology - tortoise	During clearance surveys, the biologists will only confirm a burrow as inactive if close inspection can locate all interior edges of the burrow and the end is clearly visible (and there is no plug in the burrow), such that any hidden chambers are not missed. All burrows encountered will be inspected with the use of mirrors, flashlights, and fiber optic cameras when necessary.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C22	Biology - tortoise	During clearance surveys, if an inactive burrow is near the active construction site but in no danger of disturbance, the biologists will block the burrow entrance with rocks to prevent future use of the burrow and flag it for avoidance. After completion of construction activities, the biologist will remove materials used to block and flag the burrow. The Action Proponent or Contractor will excavate all inactive burrows that construction activities are likely to disturb. The Action Proponent and Contractor will follow the guidance provided in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) when blocking, marking, and collapsing all burrows.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C23	Biology - tortoise	If construction activities cannot avoid an active burrow, an Authorized Biologist will excavate the burrow according to the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009). Authorized biologists shall relocate all desert tortoises removed from active burrows to the nearest unoccupied natural burrow or an artificially constructed burrow, or place it under a shrub if it can be released within specified temperature limits (U.S. Fish and Wildlife Service, 2009). The biologists on site will ensure that further construction activities do not disrupt the release location.	▪ NAVFAC to award and administer contract for biological services	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
C24	Biology - tortoise	The construction phase will require biological monitoring by an Authorized Biologist. The Authorized Biologist will work with the construction supervisor to minimize disturbance. The Action Proponent and Contractor will ensure that an adequate number of qualified biologists, under direct supervision of at least one Authorized Biologist, are present to monitor all aspects of the activities that have the potential to injure or kill desert tortoises (construction or maintenance of plant, evaporation ponds, wells, water lines and utilities, plus the improvements of access roads). Authorized Biologists and qualified biologists will have the authority to halt construction activities if they locate a desert tortoise in the construction area. The Action Proponent will cease all construction activity if they identify a desert tortoise within a construction area following initial clearance surveys. Construction activities will not resume until an Authorized Biologist has marked the desert tortoise and moved it to a safe location. All tortoise observations and movements are to be reported to Environmental Affairs daily, and take shall be reported immediately to Environmental Affairs.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C25	Biology - tortoise	The Action Proponent will ensure that only Authorized Biologists handle desert tortoises or their eggs except in circumstances where a desert tortoise is in immediate danger of injury and mortality. Use of Authorized Biologists and qualified biologists will be in accordance with the most recent USFWS guidance (U.S. Fish and Wildlife Service, 2008, 2017). The Action Proponent will ensure that biologists do not perform specialized handling activities (e.g., transmitter placement, health assessments, or blood collection) for which they are not specifically authorized by the USFWS.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C26	Biology - tortoise	If handling of desert tortoise and their eggs is necessary during construction, Authorized Biologists will comply with the protocols outlined in the *Desert Tortoise Field Manual* (U.S. Fish and Wildlife Service, 2009) unless otherwise authorized by Environmental Affairs.	▪ NAVFAC to award and administer contract for biological services	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		When performing tasks where tools and equipment may come in contact with desert tortoises, the Action Proponent will ensure that Authorized Biologists disinfect all tools via USFWS disease prevention protocols (U.S. Fish and Wildlife Service, 2013) or most recent USFWS guidance.			
C27	Biology - tortoise	The Action Proponent will ensure that if desert tortoises must be handled, it will only be done so when air temperature, measured at two inches above the ground (shaded bulb), does not exceed 95°F during the handling session. If air temperature exceeds 95°F during handling or processing, desert tortoises will be shaded in an environment where the ambient air temperatures do not exceed 91°F. Authorized Biologists will not release desert tortoises until the air temperature at the release site has declined to below 95°F and is expected to remain below 95°F for the remainder of that day.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C28	Biology - tortoise	The Action Proponent will ensure that desert tortoises that show clinical signs of disease will not be translocated or otherwise moved. If the Authorized Biologist or Contractor locate a desert tortoise that must be moved, and it has clinical signs of upper respiratory tract disease, they will quarantine this individual and contact Environmental Affairs to determine appropriate disposition of the animal.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C29	Biology - tortoise	The Action Proponent will ensure that construction personnel immediately report to an Authorized Biologist any desert tortoises that are within or immediately adjacent to construction activities where the desert tortoise may be in harm's way.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ NAVFAC to award and administer contract for biological services	MILCON	
C30	Biology - tortoise	During construction in areas that are not fenced with desert tortoise exclusion fencing, an Authorized Biologist or qualified biologists under direct Authorized Biologist supervision will check open trenches at least two times a	▪ NAVFAC to award and administer contract for biological services	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		day, in the morning and evening, throughout the duration of construction. If midday temperatures are likely to be above 95°F, one of these checks will occur one to two hours prior to the forecasted high temperature. The Action Proponent will leave open trenches only if they are temporarily fenced (exclusion fence) or covered to exclude desert tortoises. If a desert tortoise is found in an open trench, construction will halt and an Authorized Biologist will be contacted immediately to move the desert tortoise to a safe location. Biologists and contractors will inspect open trenches for desert tortoises prior to filling.			
C31	Biology - tortoise	During construction and operation in areas that are not fenced with desert tortoise exclusion fencing, Authorized Biologists, qualified biologists, and construction crews will check under parked vehicles prior to equipment and vehicle mobilization to ensure that desert tortoises have not sought shade beneath vehicles. If a desert tortoise is found under a vehicle, the vehicle must stay parked until the Authorized Biologist has moved the desert tortoise to a safe location. If an Authorized Biologist is not on-site and a desert tortoise is found under a vehicle, the driver will need to wait until Environmental Affairs moves the tortoise.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ NAVFAC to award and administer contract for biological services	MILCON	
C32	Biology – birds	If construction activities occur during the recognized avian breeding season (generally February 1 through September 30), construction shall occur in accordance with the MBTA to avoid impacts to nesting migratory birds potentially occurring within the project area. Specifically, a contracted qualified biologist shall check the proposed project area for nests (in trees [including tree cavities], shrubs, and on the ground) before implementing construction activities. If the biologist finds an active nest (or nest cavity), construction workers shall not disturb the nest or adjacent areas until the biologist determines the nest is no longer in use. An appropriately sized non-disturbance buffer will be placed around the nest until the biologist determines that young have successfully	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		fledged and are no longer dependent upon the nest.			
C33	Biology – birds	Biological monitoring will evaluate the presence of common ravens during construction and operation and shall follow the management recommendations outlined in the Raven Monitoring, Management, and Control Plan. If common ravens are identified perching, roosting, or nesting on building materials, equipment, waste piles, or other construction debris, the biologist may deploy hazing or other management techniques to discourage use.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C34	Biology – birds	During construction activities, specifically grading, there will be potential for animals to be unearthed, providing a food subsidy for scavengers and thereby resulting in increased attraction of common ravens to the project footprint. Daily monitoring of the construction site as well as access roads will be conducted to expedite proper disposal of food subsidies. Biologists assisting with monitoring efforts will be contacted immediately if any roadkill is detected by any personnel, and a biologist shall remove it immediately unless it is a desert tortoise. If the roadkill is a desert tortoise, construction shall halt until Environmental Affairs investigates the site and authorizes construction to resume.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C35	Biology – birds	Nesting birds: If construction occurs during the bird breeding season (generally February 1 through September 30), surveys shall be conducted no more than three days prior to the start of construction to determine if active nest sites for any avian species protected under the federal MBTA occur within the ROI. If work is conducted outside of this time frame, then no preconstruction surveys are necessary. If an active nest (defined as a bird building a nest, sitting on a nest, carrying food to young, etc.) is found, then the following buffers may apply: 500 feet for raptors and 300 feet for all other bird species.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C36	Biology-birds	Burrowing owl: Surveys shall be conducted within the ROI seven to fourteen days prior to the start of Project implementation, regardless of the time of	▪ NAVFAC to award and administer contract for biological services	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		year. If surveys are conducted during the nesting season (February 1 through September 30) and burrowing owls are determined to be nesting on or within the 100-foot buffer, an appropriate buffer (500 feet, or as MBTA updates indicate) shall be provided to the burrowing owl nest. If a buffer cannot be easily marked or maintained, such as (1) when flagging the perimeter of the buffer isn't feasible (no vegetation and hard ground); or 2) when a burrow is in the immediate vicinity of a disturbance area that cannot be realigned, such as an established access route like a main supply route, then the active burrow within the project footprint should be staked with a wooden three-to-four-foot stake tied at the top with bright flagging. Project construction shall not be permitted within the buffer until the young have fledged and left the burrow, or a qualified biologist is present and able to determine that the Project activity shall not harm any burrowing owls. If surveys are conducted during the nonbreeding season, and a burrowing owl is detected, a buffer shall be placed around the occupied burrow and the Navy shall be contacted to determine if the owl can be passively relocated via a one-way door. A biologist will be present throughout construction to ensure impacts to burrowing owls are minimized and the species does not occupy the project footprint.			
C37	Biology	Weed Management – The purpose of weed management is to prevent the introduction of any new weeds and the spread of existing weeds as a result of project construction. To prevent the spread of weeds through vehicular sources, Trackclean™ or other methods of vehicle cleaning shall be used for vehicles entering and exiting the construction area. Project vehicles shall be cleaned at a commercial facility prior to transport to the project. If needed, only weed-free straw, hay bales, and seeds for erosion control and sediment barriers shall be used.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C38	Biology	Avoid Wildlife Pitfalls and Entrapment – If located outside of desert tortoise exclusion fencing, all trenches, pipes, and	▪ NAVFAC to ensure inclusion in the Plans and specifications	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		culverts shall be inspected at the end of each work day to ensure all potential but empty wildlife pitfalls have been backfilled, sloped at a three to one ratio at the ends to provide wildlife escape ramps, or completely covered to prevent wildlife access. Such pitfalls should be inspected mid- to late-morning for desert tortoises or other wildlife to avoid their take by overheating. Should a desert tortoise, migratory bird, or any special-status species become trapped, an Authorized Biologist (for tortoises) or a qualified biologist (other species) shall remove and relocate the animal. All trenches, pits, or other excavations shall be inspected for desert tortoise, and any special-status species by an Authorized Biologist or qualified biologist (dependent on species observed) prior to filling. Both ends of all pipes and culverts stored within desert tortoise habitat shall be capped to prevent entry by burrowing owl, desert kit fox, desert tortoise, or herpetofauna.	▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ NAVFAC to award and administer contract for biological services		
C39	Biology	Desert kit fox and other special-status mammal species: Surveys shall be conducted within the ROI seven to fourteen days prior to the start of construction. Prior to construction, potential desert kit fox burrows within the ROI shall be mapped as part of preconstruction surveys, and qualified biologists shall determine whether the burrows are occupied (through the use of tracking stations or wildlife cameras). If occupied burrows are found within the project footprint, desert kit fox must be allowed to leave on their own, but if this is not possible, they must be passively relocated (through one-way doors) out of the burrows and the burrows collapsed. Passive relocation cannot occur while young are in the burrow and still dependent upon their parents, and must be avoided from March 1 through August 31.	▪ NAVFAC to award and administer contract for biological services	MILCON	
C40	Cultural	During ground disturbance activities, the Action Proponent and Contractor must stop work and immediately notify Environmental Affairs Natural Cultural Resources Officer if prehistoric artifacts, or clusters of more than ten historic-period artifacts that are known, or suspected to be, fifty years old or older,	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		are discovered. Under no conditions of inadvertent discovery are crews allowed to resume work until cleared by Environmental Affairs Natural Cultural Resources Officer.			
C41	Cultural	During ground disturbance activities, the Action Proponent and Contractor will apply the Combat Center's standard inadvertent discovery procedures and will use an archaeological monitor during any ground disturbing activities associated with the undertaking. Furthermore, the Action Proponent and Contractor will provide access to the site throughout the life of the construction project to any observer the Twenty-Nine Palms Band of Mission Indians wishes to send.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance		
C42	Water	The Action Proponent and Contractor shall ensure that Facility Engineering and Acquisition Division does not close any projects that have stormwater requirements or permits without written consent from Environmental Affairs Water Resources Manager. The Environmental Affairs point of contact is Mr. Chris Elliott at (760) 830-7883.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance		
C43	Water	The Action Proponent and Contractor shall ensure that the Contractor adheres to installation's policies on irrigation and water conservation measures. The Action Proponent and Contractor shall ensure the project adheres to Combat Center Bulletin 5090.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance		
C44	Water	Minimize Standing Water – Water applied for dust abatement shall be the minimal amount needed to meet safety and air quality standards to avoid the formation of puddles, which may attract wildlife to the project. In particular, desert tortoises and other special-status wildlife species may be attracted to the project if water is sprayed onto the access roads and construction areas. Therefore, any water that is applied to roads and construction areas shall be the minimal amount necessary, and a qualified biologist shall be present after water application to ensure that no special-status wildlife species and their predators are attracted to the water. No standing water shall be permitted on the site.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
C45	Water	Water from new wells will be sampled at least once prior to treatment and analyzed for volatile organic compounds.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C46	Water	The Action Proponent and Contractor shall ensure that any storm water runoff from construction site is controlled/released to proper storm water channels and clear of any contaminates. SWPPP's BMPs will be followed.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C47	Water (Waste)	Action Proponent shall ensure that no water, waste stream, or other materials are discharged into storm channels without written pre-approval from the Environmental Affairs Water Resources Manager.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C48	Air quality	The Construction Contractor shall employ dust abatement measures to minimize fugitive dust emissions during construction. These measures may include watering or the application of a commercial polymer-based soil stabilizer product to the laydown and staging areas to semi-permanently eliminate dust emissions. The Construction Contractor shall obtain Environmental Affairs' approval prior to the use or application of commercial polymer-based soil stabilizer products. The Contractor will apply dust abatement measures in compliance with Mojave Desert Air Quality Management District (MDAQMD) Rule 403. To do so, the Contractor shall designate personnel to monitor the dust control program and to increase dust suppression measures (e.g., watering or application of polymer-based soil stabilizer), as necessary, to minimize the generation of dust.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ EA to confirm	MILCON	
C49	Air quality	The Action Proponent shall ensure that the Contractor ensures that fugitive dust from any transport, handling, construction, or storage activity does not remain visible in the atmosphere beyond the project or worksite footprint. The Action Proponent shall take every	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		reasonable precaution to minimize fugitive dust emissions from wrecking, excavation, grading, clearing of land, and solid waste disposal operations. Mojave Desert Air Quality Management District Rule 403 applies.	▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to Review		
C50	Air quality	The Action Proponent shall ensure that the Mojave Desert Air Quality Management District is notified if any rental registered equipment unit is used in this district for more than five days. California Air Resources Board Portable Equipment Registration Program Section 2459 of Article 5 (Title 13) of the California Code of Regulations applies. The Action Proponent or the owner/operator shall ensure that the district is notified via electronic mail, in writing, facsimile, or by telephone, within two working days of commencing operations. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to Review	MILCON	
C51	Air quality	The Action Proponent shall ensure that the Contractor adheres to the emission limits for new engines, as per Title 17 California Code of Regulations Section 93115. If the generator is a non-tactical stationary or portable stand-by or prime engine, the following requirements apply: Tier 4, unless otherwise approved by the MDAQMD, California Air Resources Board, or Environmental Affairs Air Resources Manager.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to Review	MILCON	
C52	Air quality	The Action Proponent shall ensure that the Contractor ensures all paints, coatings, adhesives, and solvents use/applications follow the MDAQMD's Usage of Solvent Rule 442, Architectural Coating Rule 1113, Metal Parts and Products Coating Operations Rule 1115, and the Automotive Coating Rule 1116 to limit the quantity of volatile organic compounds. A daily log shall be maintained of the volatile organic compounds used or emitted. The log shall contain at least the following: type of equipment for application, type of material, manufacturer of material, quantity of each coating, solvent used, and its volatile organic compounds content (volatile organic compounds must be in pounds per gallon or grams per	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to Review	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		liter). Records shall be submitted to the Environmental Affairs Air Resources Office.			
C53	Air quality	The Action Proponent shall ensure non-tactical equipment with a manufacturer's maximum continuous rating of fifty brake horsepower or greater are required to be permitted by the MDAQMD or registered in the California Air Resources Board Portable Equipment Registration Program. If the equipment will eventually be handed over to the government, all MDAQMD permit applications shall be processed or approved through the Environmental Affairs Air Resources Manager. If Contractor owned or leased, all permits or Portable Equipment Registration Program registration stickers must be displayed on equipment and ensure compliance with all permit conditions. No equipment shall be placed into operation until MDAQMD permits or California Air Resources Board Portable Equipment Registration Program registration stickers are obtained. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to Review	MILCON	
C54	Air quality	The Action Proponent shall ensure that the Contractor ensures that the refrigerant being used in the air conditioning unit is a non-chlorofluorocarbon or hydrofluorochlorocarbon. The Action Proponent and Contractor shall take all necessary precautions (e.g., proper training, training certifications, and equipment) to ensure that no refrigerants are released to the atmosphere. In the event that refrigerants are released, the Contractor shall immediately notify Environmental Affairs Air Resources Manager of all refrigerant releases and estimated amount of release. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to Review	MILCON	
C55	Air quality	The Action Proponent shall ensure that the Contractor provides the following information to Environmental Affairs Air Resources Manager to register the equipment on the Refrigerant Management Inventory prior to being placed into service: equipment specifications (type, manufacture, model,	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		model year, and serial numbers), installation date, refrigerant type, refrigerant charge (pounds), leak detection device (if applicable), location description (to include building number and floor plan of refrigerant placement), and system function. The Environmental Affairs point of contact is Mr. Eddie Valls, at (760) 830-8480.	▪ Environmental Affairs to Review		
C56	Air Quality (water)	All stockpiled material will use dust control measures (e.g., cover, hydroseed) and will be stored in a manner that shall prevent runoff in the event of overwatering of the site or a storm event.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C57	Public health and safety	The Contractor shall ensure that all construction personnel remain on the access roads analyzed herein when accessing the construction sites.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C58	Public health and safety	Vehicles shall be restricted to existing roads/paths, parking areas, and authorized construction areas.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C59	Public health and safety	The Action Proponent will post and enforce a twenty-mile-per-hour speed limit for Contractor and construction personnel on all roads within desert tortoise habitat.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C60	Public health and safety	No pets shall be permitted at any time within the construction area.	▪ FEAD Twentynine Palms to ensure inclusion in Pre-con kickoff meeting ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C61	Public health	No holes shall be left exposed overnight or when the site is unattended. Any unattended holes must either be	▪ FEAD Twentynine Palms to ensure	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
	and safety	temporarily fenced or covered with plywood, sheet metal, or similar material.	inclusion in Pre-con kickoff meeting ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance		
C62	Public health and safety	In the event that hazardous materials are found at the work site, including but not limited to underground storage tanks, burn pits, or any contaminated soils, the Contractor shall immediately stop work and notify both the Combat Center's PWD and Environmental Affairs.	▪ FEAD Twentynine Palms to ensure inclusion in Pre-con kickoff meeting ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C63	Public health and safety	Implement structural and nonstructural programs (i.e., routine procedures or practices) to prohibit the storage of uncovered hazardous substances in outdoor areas.	▪ FEAD Twentynine Palms to ensure inclusion in Pre-con kickoff meeting ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C64	Public health and safety	The proposed project sites may be on an inactive military range. The Action Proponent shall ensure that construction, repair, or maintenance personnel receive initial unexploded ordnance and dud briefing by the Combat Center's Explosive Ordnance Disposal (EOD) Section prior to construction activities. If any munitions and explosives of concern are discovered during construction, repair, and or maintenance activity, the Action Proponent shall ensure operations are ceased and EOD is notified. EOD's point of contact number is (760) 830-7112.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C65	Public health and safety (waste)	Construction personnel shall remove all trash, especially food waste, from the site. To prevent attracting wildlife to the project site, all trash shall be contained in closed receptacles and removed on a regular basis to prevent it from overflowing. Trash bags shall not be stored in the open bed of pick-up trucks.	▪ FEAD Twentynine Palms to ensure inclusion in Pre-con kickoff meeting ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C66	Public health and safety (Waste)	Permanent or temporary relocation of pesticides, herbicides, and other hazardous materials and wastes shall be done in a manner that complies with the	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		Combat Center's Integrated Contingency and Operations Plans.	▪ FEAD Twentynine Palms to confirm compliance		
C67	Public health and safety (Waste)	The Action Proponent and Contractor shall ensure that all portable toilets are staked or tied down to prevent spillage. Portable toilets may not be placed within twenty feet of any storm channel or natural wash.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C68	Public health and safety (Water)	The Action Proponent and Contractor shall ensure that all paints, solvents, and equipment used in painting are handled per MCAGCC's State General Industrial Storm Water Permit/SWPPP and are not washed out on the ground.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C69	Public health and safety (Water and Waste))	The Action Proponent and Contractor shall ensure that concrete washout containment is in place and is used. All dried concrete washout material shall be disposed of properly. Concrete washouts will not be dug into the ground. Concrete washouts will be built at/above grade per MCAGCC's SWPPP.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C70	Public health and safety	The Action Proponent and Contractor shall ensure that petroleum, oil, lubricants, and toxic/hazardous materials are stored and handled in accordance with federal, state, county, Department of Defense, Department of the Navy, Marine Corps, and MCAGCC's environmental and natural resources requirements. CCO 5090.5A pertains. Environmental Affairs point of contact is Mr. Mike Elliott at (760) 830-7695.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C71	Public health and safety	The Action Proponent shall ensure that Contractors operating aboard the installation for more than thirty days submit an Authorized Use List (AUL) containing a listing of all required hazardous materials for operations. The AUL will be submitted to the AUL Working Group Manager for review and approval prior to utilizing the hazardous materials aboard the installation. The point of contact is Mr. Keith Mohn at (760) 830-3746.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C72	Public health	The Action Proponent shall ensure that all hazardous material releases are reported to the Environmental Affairs Abatement	▪ NAVFAC to ensure inclusion in the Plans and specifications	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
	and safety	Section. Environmental Affairs point of contact is Mr. Thomas Connors at 760-401-9841 and can be reached twenty-four hours a day. All documentation regarding spill releases and notifications will be conducted by the Environmental Affairs Abatement Section. Action Proponent and Contractor will not make any notifications to external agencies.	▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance		
C73	Public health and safety	The Action Proponent shall ensure that the Contractor uses a licensed hauler and temporary storage to have hazardous waste items manifested off-base. The Contractor shall coordinate the manifesting of hazardous waste with Environmental Affairs Hazardous Waste Management Section. Environmental Affairs point of contact is Mr. Pat Mills at (760) 830-5403.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C74	Public health and safety (Waste)	Oil-based drilling muds and synthetic-based drilling muds would be recovered or recycled in accordance with federal, state, and local regulations.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C75	Public health and safety (Waste)	Construction and Demolition Report will be completed upon completion of project submitted to the Solid Waste Manager, Environmental Affairs via the FEAD. The report will capture the Contractor's tonnage of construction and demolition waste that was recycled and or disposed.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C76	Utilities	The Action Proponent and the Contractor shall place permanent signs promoting awareness of desert tortoises in key locations near the Project Area to encourage personnel not to stray off established access roads.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C77	Utilities	The Action Proponent and Contractor shall ensure any fire hydrant and backflow device installed or removed are reported to the PWD Cross Connection Control Manager for addition or updated to the Combat Center's inventory. Information reported shall include: Location, Make, Model Number, Size, and Serial Number. All fire hydrant and backflow installations shall comply with	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		California Code of Regulations Title 17, Chapter 5 and MCAGCC, Marine Air Ground Task Force Training Command (MAGTFTC) Cross Connection Control Plan.			
C78	Utilities	The Action Proponent and Contractor shall ensure any newly installed drinking water distribution reservoir or any distribution reservoir that has been taken out of service for repair or inspection shall be disinfected and sampled for bacteriological quality in accordance with California Code of Regulation Title 22, Chapter 15, Article 5, Section 64582. A copy of the bacteriological sampling results shall be submitted to Environmental Affairs Water Resources Manager for review and approval prior to the reservoir being placed into service.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C79	Utilities	The Action Sponsor and contractor shall ensure any new or repaired well, or a well that has been out of operation for more than three months, are sampled for bacteriological quality prior to use in accordance with California Code of Regulation Title 22, Article 5, Section 64583. A copy of bacteriological sampling results shall be submitted to Environmental Affairs Water Resources Manager for review and approval prior to the well being placed into service.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C80	Utilities	The Action Proponent and Contractor shall ensure new and existing water mains are constructed in accordance with the California Code of Regulations Title 22, Chapter 16, Article 4, Section 64572. Specifically, maintaining a ten-foot horizontal separation from sewage lines.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C81	Utilities	The Action Proponent and Contractor will ensure any use of MCAGCC, MAGTFTC water supply is protected with a properly certified backflow preventer (double check). MCAGCC, MAGTFTC no longer approves the use of air gap(s). California Code of Regulations Title 17, Chapter 5, Article 2 Section 7605 outlines backflow testing and usage requirements. All backflows must be tested per California Code of Regulations Title 17, Chapter 5, Article 2, Section 7605, and the results reported to Environmental Affairs Water Resources Manager and	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		MCAGCC, MAGTFTC Cross Connection Control manager prior to being placed into service.			
C82	Utilities	The Action Proponent and Contractor shall ensure that plant material used is drought tolerant and irrigation is conducted with a water-wise approach.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C83	Utilities Geology	The action Proponent shall ensure any flowing or flushing of fire hydrants is performed with the use of a diffuser to reduce erosion of surrounding soils.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C84	Utilities	Overhead electrical poles shall have avian protection designed and installed.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C85	Utilities	The Action Proponent and Contractor shall ensure the updated "As-Builts" are completed and submitted to PWD for any modifications to utilities. These changes shall be incorporated to geographic information systems as applicable.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C86	Utilities	Because stand-by generators are required, the Contractor would be required to obtain an Authority to Construct permit from the MDAQMD before the construction of the proposed MILCON project. The application package must be reviewed and approved by the Environmental Affairs Air Resources Manager before being submitted to the MDAQMD. Contact Environmental Affairs for Application Package details.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to Review	MILCON	
C87	Utilities	The Action Proponent shall ensure that the Contractor ensures the aboveground storage tank system(s) are properly labeled and installed in accordance with National Fire Protection Association, California Fire Codes, and manufacturer's guidelines. All aboveground storage	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply	MILCON	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
		containment tanks shall have secondary containments and be in compliance with federal, state, and local regulations.	▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to Review		
C88	Utilities	The construction Contractor shall document the area that has been permanently stabilized by concrete and/or asphalt after construction. In accordance with MDAQMD Regulation 14 (1400-1404), Environmental Affairs may elect to apply for and register Emission Reduction Credits for this area, to bank for future potential use at the Combat Center.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ Environmental Affairs to apply for credits	MILCON	
C89	N/A	Within thirty days from the Beneficial Occupancy Date, the Action Proponent shall ensure that the Contractor certifies on Company Letterhead to the Contracting Officer that the Environmental Protection Plans under the conditions of this EA were met during the construction period. The Environmental Close-out Letter shall be signed by a Company official or responsible employee who has personal knowledge on the compliance of the Environmental Protection Plans and the EA during the construction period of contract. All reports required under the EA (i.e., MCAGCC Environmental Awareness Training Roster, Construction and Demolition Report, Hazardous Material Usage Log, Safety Data Sheets, etc.) shall be submitted with the Environmental Close-out Letter.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance	MILCON	
C90	N/A	The Action Proponent shall submit this matrix with updated costs to Environmental Affairs and the completed MMMER within thirty days of the completion of the Construction Phase.	▪ Submission via the FEAD to Environmental Affairs	N/A	N/A

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
Post Construction (PC) Phase Activities					
PC1	N/A	The Action Proponent shall ensure that all design and operation measures in the EA are carried forward during Post-Construction/Operation.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance during construction ▪ PWD to provide maintenance after construction	Environmental Affairs and PWD	
PC2	N/A	The Action Proponent shall implement an Operations and Maintenance Program to ensure the continued effectiveness of post-construction BMPs once construction is completed. Post-construction BMPs will be determined by the Combat Center based upon specific locations and needs.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply (for one year warranty period) ▪ FEAD Twentynine Palms to confirm compliance ▪ PWD and Environmental Affairs to Maintain	PWD	
PC3	Biology – tortoise	Due to the long-term nature of the Project, a Desert Tortoise Education Program shall be required for all personnel entering the training area, such as construction, operation, and maintenance personnel; including those driving transport trucks for chemicals and waste removal. As part of the education program the Action Proponent will inform operations personnel of their responsibility to halt, stay at scene, and report any form of injury or mortality of desert tortoises to Environmental Affairs.	▪ PWD and Environmental Affairs	PWD	
PC4	Biology	The Raven Monitoring, Management, and Control Plan will be continued in order to monitor and minimize raven effects to desert tortoise, and any adaptive management measures will be implemented via PWD and Environmental Affairs cooperation.	▪ PWD and Environmental Affairs	PWD and Environmental Affairs	
PC5	Water	The Action Proponent shall implement post-construction BMPs to reduce stormwater pollution and prevent water quality degradation as required by MCAGCC's Stormwater Management Plan.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to construct ▪ FEAD Twentynine Palms to confirm compliance	MILCON, Environmental Affairs, and PWD	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
			▪ PWD to Maintain		
PC6	Public health and safety	The Action Proponent shall ensure that all operational activities comply with all applicable Environmental Standard Operating Procedures.	▪ PWD and Environmental Affairs	Environmental Affairs and PWD	
PC7	Public health and safety	Maintenance personnel will remain on the access roads analyzed herein when accessing the Project Area.	▪ PWD and Environmental Affairs	N/A	
PC8	Public health and safety	The Action Proponent will post and enforce a twenty-mile-per-hour speed limit for maintenance personnel on all roads within desert tortoise habitat in the Project Area.	▪ PWD and Environmental Affairs	N/A	
PC9	Public health and safety (Waste)	The Action Proponent will require all Contractor and maintenance personnel to remove or contain foodstuffs, trash, or other wastes that may attract predators of desert tortoise, including coyote (*Canis latrans*) and common raven. Trash and food items will be placed in a closed, secured container and removed routinely and less than weekly, to reduce the attractiveness to opportunistic predators such as common ravens.	▪ PWD and Environmental Affairs	PWD	
PC10	Public health and safety (Waste)	Storage, usage, and disposal of hazardous materials and wastes at the site shall adhere to the Combat Center's Integrated Contingency Operations Plan and be managed in accordance with all applicable federal and state regulations.	▪ PWD and Environmental Affairs	PWD	
PC11	Public health and safety (Waste)	The Action Proponent and Contractor shall ensure that petroleum, oil, and lubricants and or toxic/hazardous materials are stored and handled in according with federal, state, county, DoD, Department of the Navy, U.S. Marine Corps, and MCAGCC's environmental and natural resources requirements. CCO 5090. 5A pertains. Environmental Affairs point of contact is Mr. Mike Elliott at (760) 830-7695.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance ▪ PWD for maintenance	Installation by MILCON Maintenance by PWD	
PC12	Utilities	The Action Proponent shall ensure that the Contractor ensures compliance with 40 Code of Federal Regulations 112.9 (4) and (5). Requirement to regularly inspect all aboveground valves, piping, and appurtenances, and to warn all vehicles entering the facility to be sure that no vehicle will endanger aboveground piping. Environmental Affairs point of contact is Mr. Joe Cleek, at (760) 830-8361 or joe.cleek@usmc.mil.	▪ NAVFAC to ensure inclusion in the Plans and specifications ▪ Construction Contractor to comply ▪ FEAD Twentynine Palms to confirm compliance		
PC13	N/A	Environmental Affairs Media specialist inspect PWD Ops quarterly	▪ Environmental Affairs and PWD	PWD	

ID #	Resource Area(s)	Minimization, Mitigation, and Monitoring Measure	Responsible Organization	Source	Estimated Cost
PC14	N/A	All conservation measures outlined in the Integrated Natural Resources Management Plan 2012-2016 and BO from 2002 and 2012 shall be adhered to, as relevant to the project.	▪ Environmental Affairs and PWD	PWD	

APPENDIX D: RECORD OF NON-APPLICABILITY (RONA) FOR CLEAN AIR ACT CONFORMITY SAN BERNARDINO COUNTY

This Proposed Action falls under the Record of Non-Applicability (RONA) category and is documented with this RONA.

The U.S. Environmental Protection Agency published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule,* in the 30 November 1993, Federal Register (40 Code of Federal Regulations [CFR] Parts 6, 51, and 93). The U.S. Navy published *Clean Air Act Conformity Guidance* in Appendix F, Chief of Naval Operations Instruction 5090.ld, dated 30 July 2013. These publications provide implementing guidance to document Clean Air Act Conformity Determination requirements.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable implementation plan, before the action is taken (40 CFR Part 1 51.850[a]).

Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels for criteria pollutants (40 CFR Part 51.853[b]). *De minimis* levels (in tons/year) for the air basin potentially affected by the Proposed Action are listed in Table 1.

Table 1: *De minimis* Levels for Criteria Pollutants in San Bernardino County

Criteria Pollutant	*De minimis* Level (tons/year)
Volatile Organic Compounds	25
Oxides of Nitrogen	25
Particulate Matter - 10 µm in Diameter	100

PROPOSED ACTION

Action Proponent: U.S. Marine Corps

Location: U.S. Marine Corps Marine Air Ground Task Force Training Command/Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, California

Proposed Action Name: New Drinking Water Treatment Plant at MCAGCC Twentynine Palms

Proposed Action and Emissions Summary: The Proposed Action involves the construction and operation of a new drinking water treatment plant and three new production wells that would supplement existing wells. Construction emissions would originate from the combustion of fossil fuels in construction equipment and vehicles. Operational emissions would come from the combustion of fossil fuels in material delivery trucks, waste pickup trucks, and emergency generators.

Air Emissions Summary: Construction emissions were calculated by using California Emissions Estimator Model (CalEEMod) version 2013.2.2. CalEEMod is a computer model developed by the South Coast Air Quality Management District with the input of several air quality management and pollution control districts to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The San Bernardino County database was used for the proposed Project.

Specific inputs to CalEEMod include land uses and project site areas. Construction input data include, but are not limited to, (1) the anticipated start and finish dates of each Project construction activity; (2) inventories of construction equipment to be used during each activity; and (3) areas to be disturbed. The input data and assumptions are based on information contained in Chapter 2 (Description of the Proposed Action and Alternatives) of the EA and provided in detail in this Appendix.

Table 2 summarizes the annual construction and operational emissions associated with the Proposed Action.

Table 2: Annual Construction/Operational Emissions (Proposed Action)

MILCON Project Number	Pollutant Emissions (tons/year)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
2019 Construction Emissions						
Production Wells	0.075	0.752	0.505	0.001	0.046	0.043
Water Treatment Plant Construction	1.228	12.162	7.093	0.012	0.669	0.627
Road Construction	0.177	1.764	1.102	0.002	0.099	0.093
Pipeline Construction	0	0	0	0	0	0
Utility Installation	0	0	0	0	0	0
2019 Total Emissions	1.480	14.678	8.699	0.015	0.814	0.763
2020 Construction Emissions						
Production Wells	0	0	0	0	0	0
Water Treatment Plant Construction	0.330	3.237	1.866	0.003	0.178	0.167
Road Construction	0	0	0	0	0	0
Pipeline Construction	0.386	3.992	2.344	0.004	0.223	0.209
Utility Installation	0.089	0.847	0.505	0.001	0.054	0.051
2020 Total Emissions	0.805	8.076	4.715	0.008	0.455	0.426
2021 and Onward Operational Emissions						
Water Treatment Plant	0.335	3.972	1.727	0.005	0.142	0.132
Production Wells	0.117	1.257	0.568	0.001	0.066	0.018
2021 Total Emissions	0.452	5.229	2.295	0.006	0.209	0.150
Worst Case Annual Emissions	1.480	14.678	8.699	0.015	0.814	0.763
De Minimis Thresholds[a]	25	25	100	-	-	-
Adverse Effect?	*No*	*No*	*No*	*No*	*No*	*No*

Source: CalEEMod (output data is provided in this Appendix)

[a] *De minimis* threshold levels for conformity applicability analysis (Table 1).

Table 2 shows that annual construction emissions generated by the Proposed Action are well below the San Bernardino Air Basin conformity *de minimis* levels. As a result, the Proposed Action would not produce adverse air quality impacts.

Date RONA Prepared: 23 May 2018.

EMISSIONS EVALUATION AND CONCLUSION

The Proposed Action would involve minor grading and construction emissions, and the annual construction emissions are below *de minimis*. Operational activities involve material delivery, waste pickup, and the potential use of emergency generators. Therefore a small net increase in emissions would result from the Proposed Action.

The Marine Corps concludes that *de minimis* thresholds for applicable criteria pollutants would not be exceeded nor would the projected emissions be regionally significant (i.e., greater than 10 percent of the air basin' s emission budgets) as a result of implementation of the Proposed Action. Therefore, the Marine Corps concludes that further formal Conformity Determination procedures are not required, resulting in this Record of Non-Applicability.

RONA APPROVAL

To the best of my knowledge, the information presented in this RONA is correct and accurate and I concur in the finding that the proposed action is not subject to the General Conformity Rule.

6 SEP 18
Date

R. B. TURNER, JR
Brigadier General, United States Marine Corps