The Proposed Action would largely avoid disturbance of prime farmland soils in the Military Lease Area, with the exception of a small corner of Landing Zone 8 proposed at a site south of 110th Street at 8th Avenue; portions of Base Camp; the southernmost communications tower; and proposed water line (Figure 4.12-2). The Landing Zone would only require vegetation maintenance and would not involve digging in the soil or the placement of a permanent structure. The Base Camp would utilize existing USAGM infrastructure, including the existing communications tower #16, and require minimal additional soil disturbance in areas of prime farmland soils. The proposed water line alignment north of West End Avenue and connecting to the Base Camp would result in minimal, short-term disturbance of prime farmland soils from trenching during installation. Therefore, there would be less than significant impacts to prime farmland or erodible soils on Tinian under Alternative 1.

4.12.4 Alternative 2

Under Alternative 2, training would continue and would increase over the No Action Alternative by approximately 5 percent, which is approximately 10 percent less than Alternative 1. This would result in less than significant impacts similar to those described under Alternative 1.

Construction for Alternative 2 would be the same as described for Alternative 1. With implementation of management measures, there would be short-term and less than significant impacts to topography, geology, and soils associated with Alternative 2.

4.13 Groundwater and Hydrology

4.13.1 Approach to Analysis

The analysis of potential impacts to groundwater and hydrology focuses on groundwater quantity and quality. Factors used to assess the impacts of the Proposed Action to groundwater and hydrology include: (1) the availability of groundwater to supply the potable water for both the Proposed Action and civilian populations; and (2) the potential for the Proposed Action to impact groundwater quality. As part of this analysis a comprehensive hydrological study for the Proposed Action, called the Groundwater Modeling Technical Memorandum, was included in Appendix M (Utility Studies) of the Revised Draft EIS. The study considered groundwater demand, including current and projected demands for all uses (related to the Proposed Action, other DoD, and non-DoD water demands) to evaluate impacts from the Proposed Action.

4.13.2 No Action Alternative

Under the No Action Alternative, ground and aviation training events would continue in the Military Lease Area with the same type of activities and at the same tempo as described in previous NEPA documents (DON 2015). In addition, all actions related to the U.S. Air Force Divert Activities project (U.S. Air Force 2016, 2020) would be implemented. No change would occur under the No Action Alternative, therefore, there would be no impact to groundwater or hydrology.

4.13.3 Alternative 1

4.13.3.1 Training

Groundwater Availability

The Proposed Action includes addition of new water infrastructure to support the Base Camp, which would not be connected to the Commonwealth Utilities Corporation water system. This new

water infrastructure is proposed to consist of up to four new or rehabilitated groundwater wells, aboveground storage, and a booster pump station. Table 4.13-1 provides the average annual water demand for the new water infrastructure.

Table 4.13-1 Average Annual Water Demands at the Base Camp Under Alternative 1

Description	*Demand*	*Cycles Per Year*	*Persons × Day*	*Unit Water Demand (gpcd)*	*Demand (gallons/year)*
Large Training Group	1,000 persons × 30 days	4	120,000	50	6,000,000
Medium Training Group	250 persons × 14 days	4	14,000	50	700,000
Small Training Group	100 persons × 14 days	10	14,000	50	700,000
Permanent Support Personnel (8-hour shift)	50 persons × 365 days	1	18,250	30	547,500
Portable Vehicle Wash Facility					23,940
				Total	**7,971,440**

Legend: gpcd = gallons per capita per day.

Other uses of potable and non-potable water on Tinian include new wells at North Field (part of the Proposed Action), new wells for the U.S. Air Force, existing agricultural wells operated by the Tinian Mayor's Office, and the potable water supply for the Commonwealth Utilities Corporation. Table 4.13-2 summarizes these demands.

Table 4.13-2 Summary of Average Annual Water Demands on Tinian

Owner	*Facility*	*Type*	*Average Annual Water Demand[2] (gallons per year)*
Military	CJMT Base Camp	Potable	7,971,440
Military	CJMT North Field	Non-Potable	800,000
Military	U.S. Air Force North Field Rehabilitation	Non-Potable	4,380,000
Military	Tinian Divert Infrastructure Improvements	Potable	800,000
Commonwealth Utilities Corporation	Maui Well No. 2[1]	Potable	314,727,702
Tinian Mayor's Office	Well M-21 (CJMT Construction)	Non-Potable	21,600,000
Tinian Mayor's Office	Well M-26 (Existing Agriculture)	Non-Potable	21,600,000

Legend: CJMT = Commonwealth of the Northern Mariana Islands Joint Military Training; No. = number; ; U.S. = United States.
Notes: [1] Average of production at Maui Well No. 2 from 2019 to 2023 and proposed CJMT demands on the Commonwealth Utilities Corporation water system.
[2] Total demand for all the wells.

The total potable and non-potable water demand from existing and proposed uses is approximately 372 million gallons per year. This total water demand has been estimated at 7 to 9 percent of the sustainable yield of the groundwater aquifer, which is approximately 4 to 5 billion gallons per year. As described in Section 3.13, the average annual recharge of Tinian's aquifers is estimated at 20 billion gallons per year. Of this amount, 20 to 25 percent may be sustainably extracted with a broadly distributed network of wells across the island (i.e., 4 to 5 billion gallons per year).

Because the demand from Alternative 1 combined with the current and projected future civilian demand is well below the estimated annual sustainable yield of 4 to 5 billion gallons per year, Alternative 1 would result in a less than significant impact to groundwater availability.

No changes to water usage are proposed for the USAGM site on Saipan. Thus, there are no impacts to groundwater availability on Saipan.

Groundwater Quality

Alternative 1 would result in an increase in the quantity of groundwater extracted to meet water demands during training events. Increased groundwater pumping could potentially lead to saltwater intrusion into the freshwater aquifer, causing chloride concentrations to increase. The Commonwealth Utilities Corporation water system reports that existing chloride concentrations in Tinian's groundwater supply ranged from 145 and 213 milligrams per liter between 2012 and 2023 (Commonwealth Utility Corporation 2013, 2014c, 2015a, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023 and 2024a). This remains below the secondary maximum contaminant level for chloride of 250 milligrams per liter adopted by the CNMI Bureau of Environmental and Coastal Quality for contaminants that are not considered a risk to public health (CNMI Drinking Water Regulations, Chapter 65-20).

To evaluate impacts to chloride concentration in Tinian's groundwater supply from Alternative 1, a groundwater model was prepared evaluating current conditions and four future scenarios, including drought and normal precipitation years. The model assumed an extraction of 21,777 gallons per day of groundwater from the CJMT wellfield A or B (plus Maui Well Number 2 [civilian demand], M-21 [CJMT construction demand], M-26 [agricultural demand], two CJMT North Field wells, the U.S. Air Force Divert well near TNI, and U.S. Air Force North Field well) (Appendix M). The CJMT wellfield demand is based on average demands (including the low, medium and high-intensity training outlined in Table 4.13-1) combined with operational staff and construction personnel. Other assumptions used in the model were that well screens would be set no deeper than 15 feet below mean sea level and pumped at no more than 60 gallons per minute per well. The results of the modeled scenarios predict that chloride concentrations in groundwater at Maui Well Number 2 and either the CJMT wellfield A or B would only negligibly increase due to groundwater withdrawals under Alternative 1.

Construction and operation of each new and existing groundwater well is subject to an annual permit from the CNMI Bureau of Environmental and Coastal Quality. The CNMI Bureau of Environmental and Coastal Quality determines extraction limitations based on the results of pump tests, aquifer recovery tests, and water quality testing. The extraction limitations are subject to change each year based on test results to protect groundwater quality.

The modeled scenarios also evaluated the impact of USMC groundwater withdrawals on the existing Commonwealth Utilities Corporation Maui Well Number 2. The results of the groundwater model demonstrate that the use of the proposed new water system to support construction and training events within the Military Lease Area would have less than significant impacts on water quality at existing Commonwealth Utilities Corporation Maui Well Number 2. Additional detail on the groundwater model is included in Appendix M.

No changes to water usage are proposed for the USAGM on Saipan. Thus, there are no impacts to groundwater availability on Saipan.

4.13.3.2 Construction

Industrial demands during construction would include mixing concrete, earthwork compaction, dust control, hydrostatic pressure testing, and cleaning. The U.S. Air Force is currently constructing the Tinian Divert Infrastructure Improvements at TNI. The contractor purchases all water for that construction from the Tinian Mayor's Office at Well M-21. The CNMI Bureau of Coastal Quality requires annual well testing and sets extraction limits to protect groundwater quality. Well M-21 has a permitted extraction capacity of 1.8 million gallons per month in 2024 (J. Aldieri, NAVFAC Marianas, Personal Communication, 2024), or 21.6 million gallons per year. All water from this well is used exclusively for construction purposes.

The construction contractors are responsible for obtaining non-potable water used in construction. Construction of the Tinian Divert Infrastructure Improvements would be completed prior to starting construction of the Proposed Action. It is anticipated that the contractors for the Proposed Action would make arrangements with the Tinian Mayor's Office to use Well M-21 for construction water if sufficient water is unavailable closer to the construction site.

The Proposed Action is substantially smaller in size and scope than the Tinian Divert Infrastructure Improvements and would use less water during construction. To be conservative, it is assumed that the same quantity of water, 21.6 million gallons (81.8 million liters) per year, would be used in construction of the Proposed Action. The groundwater model included this demand at Well M-21 in the analysis and there was no impact. Groundwater extraction limits are also set annually based on field testing to protect groundwater quality; therefore, there would be no impacts to groundwater quality from construction.

4.13.4 Alternative 2

The training tempo under Alternative 2 would increase by approximately 5 percent over training already approved to occur on Tinian, which is approximately 10 percent less than Alternative 1, resulting in a proportional decrease in water use by 10 percent. As a result, the average annual water demand under Alternative 2 would be 7,174,296 gallons per year. This would be a less than significant impact to groundwater availability. Impacts to groundwater quality would also be lower than Alternative 1 and would remain less than significant.

4.14 Surface Waters and Wetlands

4.14.1 Approach to Analysis

This analysis considers Proposed Action impacts to the quality and quantity of surface waters and wetlands within the Military Lease Area as compared to existing conditions. Conditions that may directly affect the quality of surface waters and wetlands include increased pollutant or sediment loads from training and construction. Quantity, defined as the volume of water stored in wetlands, is affected by changes to surface water area, or other physical changes from excavation, adding fill, or expanding impervious surfaces. These changes may result in different drainage patterns or flood susceptibility or effects to hydrology, soils, or vegetation that support a wetland. Note that because there is no proposed training or construction at the former USAGM Saipan site, the site is not included in the analysis.

This analysis assumes that the required National Pollutant Discharge Elimination System Construction General Permit would be obtained before construction activities commence. The National Pollutant Discharge Elimination System Construction General Permit is a key regulatory