4.10. HYDROLOGY AND WATER QUALITY

This section includes the following discussion and analysis related to hydrology and water quality: existing environmental and regulatory setting; criteria and methodology for evaluating impacts; and results of the impact assessment, including identification of potentially significant impacts and corresponding mitigation measures to avoid or substantially lessen such impacts to the extent feasible, as appropriate. The District received no scoping comments pertaining to hydrology and water quality (see PEIR Scoping Report in Appendix A of this document). Scoping comments related to water supply are addressed in Section *4.17. Utilities and Service Systems*.

4.10.1. Environmental Setting

Climate and Rainfall

In the Plan Area, summers are hot and dry with average high temperatures in the high 90s and nighttime lows in the low 60s. The winters tend to be foggy and cool, with average highs in the high 50s and average lows in the mid-30s to mid-40s depending on location. Rainfall occurs primarily in the winter months between October and May, and average annual rainfall ranges from 6 to 8 inches depending on location within the Plan area (Fresno Co. 2023b).

Regional and Local Drainage

The Plan Area is on the west side of the San Joaquin Valley, which receives drainage flows from the Diablo Range from the west (see Figure 4.10-1). The east slope of the Diablo Range is drained by a series of streams that flow eastward into the alluvial fans of the valley floor. All these streams are ephemeral, and most are small and unnamed. Some have large drainage areas, so major storm events can result in high stream flows and downstream flooding on the valley floor. In the Plan Area, the major streams are Little Panoche Creek and the Arroyo Pasajero Stream System. These creeks and other local drainage courses are shown in Figure 4.10-1 and described below.

Little Panoche Creek

Located outside the Plan Area to the northwest, Little Panoche Creek drains the Little Panoche Valley and surrounding hills. Normal flows in the creek emerge from the foothills and pass under I-5 and the California Aqueduct and follow the natural channel east for a further 1.5 miles where the channel ends. The creek is managed for flood control purposes by the California Department of Water Resources (DWR). Little Panoche Reservoir, located approximately 3 miles west of I-5, was constructed by the U.S. Bureau of Reclamation (USBR) to provide flood protection for the San Luis Canal/California Aqueduct. The detention dam is maintained by USBR, which ensures dam safety through regular inspections and corrective actions as needed to meet federal dam safety standards. The reservoir was designed for a 100-year storm and has a storage capacity of 820 acre-feet (AF). When storage levels exceed capacity, the uncontrolled spillway releases water which flows downstream under I-5 to the California Aqueduct where it enters a retention basin.

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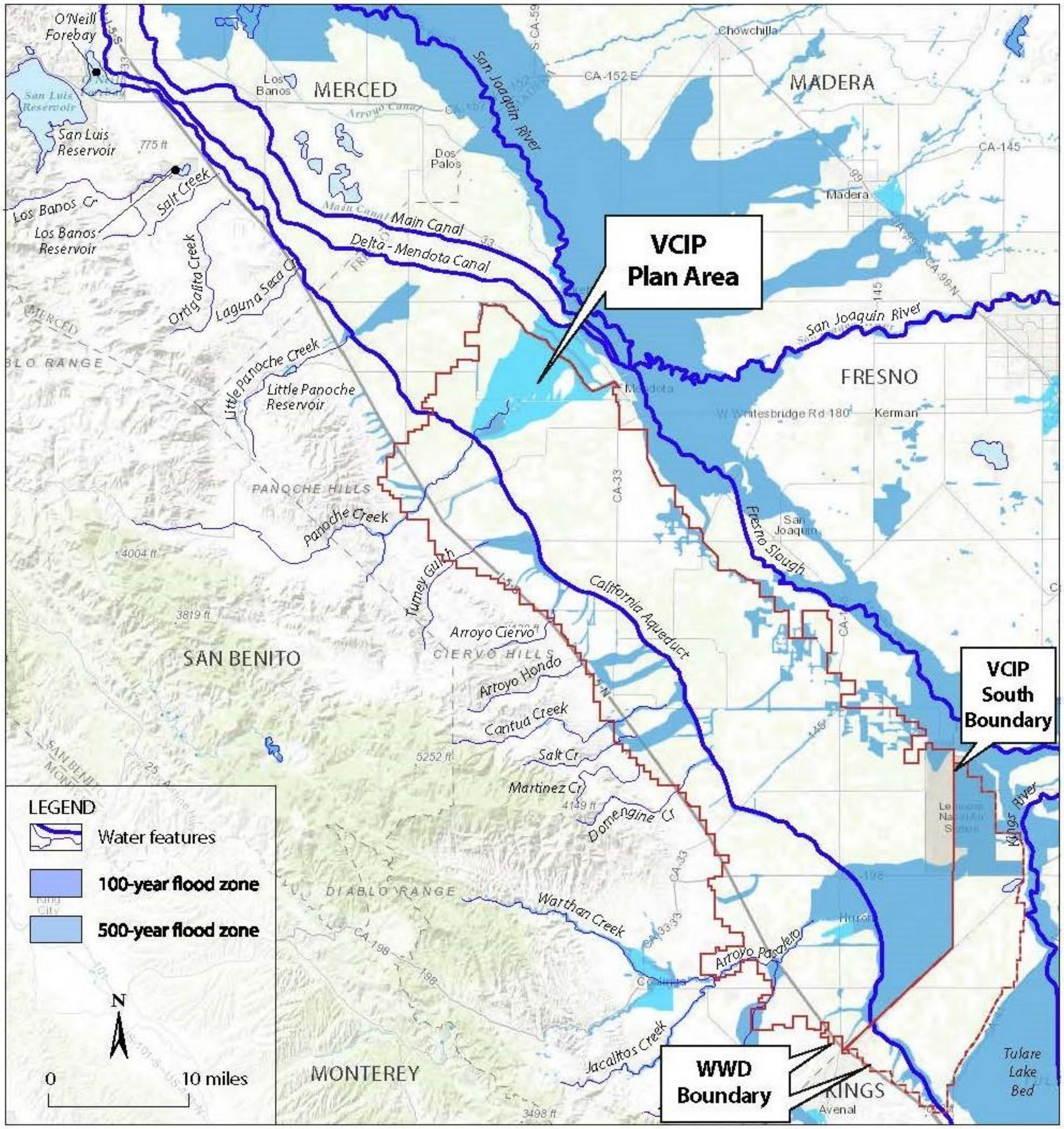

Source: FEMA, 2015

Surface Hydrology
Figure 4.10-1

Panoche Creek

Panoche Creek flows eastward from the Panoche Valley and passes under I-5 north of Panoche Road. At the California Aqueduct, the Aqueduct is siphoned under the creek bed in two large pipes. On the east side of the Aqueduct, the natural channel continues northeastward for 5 miles and terminates at Belmont Avenue, one mile east of Jerrold Avenue, within the Plan Area.

Tumey Gulch and Arroyo Ciervo

These two streams flow easterly from the Ciervo Hills into the valley and enter the western portion of the Plan Area. The eastward flow from these streams is obstructed by the California Aqueduct. During periods of high flow, flood water forms ponds on the west side of the Aqueduct that may spill stormwater and sediment into the Aqueduct during storm events.

Cantua Creek System

The Cantua Creek System includes Arroyo Hondo, Cantua Creek, Salt Creek, Martinez Creek, and Domengine Creek. These creeks drain the east side of Joaquin Ridge, and pass under I-5 between Kamm Avenue and Fresno-Coalinga Road in the western portion of the Plan Area. Stormwater from the Cantua Creek system may form ponds on the west side of the California Aqueduct during times of high flow.

Arroyo Pasajero Stream System

The Arroyo Pasajero Stream System (also known as the Los Gatos Creek System) encompasses the largest drainage area in the western San Joaquin Valley. The major creeks in the system include Los Gatos, Warthan, Jacalitos, and Zapato-Chino creeks. The system drains the City of Coalinga and Pleasant Valley and then passes under I-5 between El Dorado and Jayne Avenues. Flows from Arroyo Pasajero are collected in a large detention basin on the west side of the California Aqueduct, north of the City of Huron.

Apart from the above creek systems, there are no other natural drainage features within the Plan Area. Throughout the District, an engineered system of irrigation canals and ditches historically conveyed and distributed irrigation water. Most of these are no longer used, as the CVP installed a buried distribution system to deliver surface water, and farmlands have either been retired from irrigated agriculture or the transition to drip irrigation systems and other improvements have rendered many canals and ditches obsolete.

Given the level terrain of the Plan Area, the small amount of annual rainfall tends to evaporate or pond in place and percolate into the soil, and surface runoff of stormwater is negligible. Any substantial runoff naturally flows with the topographic gradient and is captured by the system of intervening canals and ditches. There are no drainage outlets from any portion of the Plan Area.

Drainage East of the Plan Area

On the east side of the San Joaquin Valley, drainage flows from the Sierra Nevada are conveyed by an extensive network of rivers and streams into the Valley. The streams and rivers in the northern portion of the Valley converge on the San Joaquin River which flows to the Delta and ultimately the Pacific Ocean, while major rivers of the southern Sierra (Kings, Kaweah, and Tule, as well as a number of lesser streams) all drain west into the Tulare Lake Bed which has no outlet to the ocean. The southern-most river - the Kern River - historically flowed to the Buena Vista Lakebed at the southern end of the San Joaquin Valley. These rivers and creeks formed broad deltaic fans as they emerged from the Sierra foothills and branched out as they emerged onto the Valley floor to form distributary systems that spread out over the alluvial fans. Since the Tulare Basin is the topographical low point in the Plan Area vicinity, the distributary channels historically converged at Tulare Lake. The water courses flowed undammed toward the Tulare Basin in dozens of channels and sloughs that shifted periodically during flood events. During particularly wet years, Tulare Lake could expand to over 800 square miles, and in the event of extreme rainfall and flooding, the surface water reached elevations where it began to flow north into Fresno Slough and to the San Joaquin River. Construction of canals and diversion structures to redirect surface water for irrigation of agricultural lands began in the mid-1800s. Irrigation infrastructure constructed upstream from Tulare Lake slowly cut off the lake from its source waters and it began to shrink, and by the end of the century it had all but disappeared. The lakebed was converted to agriculture with levee construction and the formation of reclamation districts. During extremely wet years, the Tulare Basin floods to form a temporary lake feature, but water elevations have remained below the level where flows would be released to Fresno Slough to the north. In recent times, the Tulare Basin has flooded in 1969, 1983, 1997, and 2023.

Other Water Conveyance Features

The major water conveyance features within and near the Plan Area include: the San Luis Canal/California Aqueduct which runs along the west side of the valley floor roughly parallel to Interstate-5; and the Delta-Mendota Canal which passes within 1.5 miles of the Plan Area on the north. Several other parallel canals convey water from the Delta southeast to the Mendota Pool located near the northeast corner of the Plan Area. In addition, the concrete-lined channel of the former San Luis Drain, which was used to convey agricultural drainage water northward for disposal but is now dry, runs along the eastern edge of the Plan Area.

Surface Water Quality

Under the federal Clean Water Act section 303(d) (33 U.S.C., § 1313), the California State Water Resources Control Board (SWRCB) is required to identify water bodies that do not meet water quality standards. The “Impaired Water Bodies” in the vicinity of the Plan Area are listed below, along with the pollutants listed for each (SWRCB 2024).

- Panoche Creek (18-mile segment from Silver Creek in Diablo Range to Belmont Avenue) – mercury, sedimentation/siltation, selenium, toxicity.
- San Joaquin River (Mendota Pool to Bear Creek) – pesticides, toxicity, pH, DDT.
- Mendota Pool – mercury, selenium.
- Kings River, Lower (Island Weir to Stinson and Empire Weirs) – electrical conductivity, toxaphane, boron, molybdenum, toxicity, pyrethroids, bifenthrin, dissolved oxygen, pH.

The only impaired water body within the Plan Area is the 2-mile segment of Panoche Creek that extends into the northwestern portion of the Plan Area. All other impaired water bodies listed above are outside the Plan Area.

Flooding Potential

According to the Flood Insurance Rate Maps (FIRM) covering Fresno County, the majority of the Plan Area is designated Zone X (Area of Minimal Flood Hazard). Several areas within the Plan Area are within the mapped 100-year flood zone. As shown in Figure 4.10-1, flood flows during the 100-year (1% Annual Chance Flood

Hazard) event would include lands adjacent to the westside drainage systems described above, a large area located generally south of SR-198 and east of the Arroyo Pasajero Westside Detention Basin, and scattered lands throughout the low-lying eastern portions of the Plan Area. During the 500-year (0.2%) event, additional floodwater generated by Panoche Creek would result in broad overland sheet flows that would extend over an approximately 35 square-mile area in the northern portion of the Plan Area (FEMA 2009).

Inundation Potential Due to Dam Failure

Some portions of Fresno County would be subject to potential inundation if dams located in the Sierra Nevada and the Diablo Range were to fail. Failure of Pine Flat Dam on the Kings River or Friant Dam on the San Joaquin River would result in potential westward inundation across large areas of central Fresno County, eventually turning northward to lower elevations along Fresno Slough and the San Joaquin River. The western edges of these inundation areas extend into the northeast margin of the Plan Area between Mendota and San Joaquin. The inundation zones for the Terminus Dam on the Kaweah River would extend as far west as Highway 41 in Kings County and would not encroach upon the Plan Area (Fresno County 2023b; Kings County 2010e).

In the Diablo Range, failure of the dam at Little Panoche Reservoir would similarly inundate a broad area extending east toward the San Joaquin River and then head north along the trough of the valley. The mapped inundation zone would extend to within 4 miles of the northwest boundary of the Plan Area but would not encroach upon it.

Most of the Plan Area is outside the mapped inundation areas for all reservoirs in the region, except a relatively small area south of Mendota where lands on the northeastern margin of the Plan Area may be subject to risk of flooding in the unlikely event of dam failure at Friant Dam or Pine Flat Dam.

Groundwater

The San Joaquin Valley is underlain by deep water-bearing alluvial deposits. For planning purposes, DWR divides the valley into groundwater basins and subbasins. The Plan Area is located entirely within the Westside Subbasin of the San Joaquin Groundwater Basin. The boundaries of the Westside Subbasin correspond closely with the boundaries of the District.

The Westside Subbasin consists of two main water-bearing zones, an upper and a lower zone, separated by the impervious Corcoran Clay formation. Corcoran Clay divides the groundwater system into two major aquifers – a confined aquifer below (Lower Aquifer) and a semi-confined aquifer above (Upper Aquifer). Within the Plan Area, the Corcoran Clay layer ranges in thickness from approximately 20 to 100 feet, and occurs at depths ranging from approximately 400 to 800 feet (DWR 2020, Figures 2-30 and 2-31).

Groundwater quality in the Westside Subbasin typically varies with depth, with the poorer quality (more saline) water present in the upper and lower limits of the basin, and optimum quality somewhere in between. The base of fresh water is defined as the level at which total dissolved solids (TDS or salts) exceed 2,000 parts per million, which is considered the upper limit of salinity for irrigation of most crops. Within the Plan Area, the base of fresh water ranges from approximately 400 to 2,400 feet below the ground surface (DWR 2020, Fig. 2-32).

In January 2020, the District's Board of Directors adopted the Groundwater Sustainability Plan (GSP) for the 622,215-acre Westside Subbasin (Subbasin), which includes the entire District service area of 614,700 acres. In

June 2022, the District's Board of Directors adopted clarifications and amendments to the GSP. Most recently, the District's Board of Directors adopted the 2025 Amendment to the GSP in December 2024.[1] The GSP determined that the estimated sustainable yield for the historical period (1989-2015) across the Subbasin is 305,000 acre-feet per year (AFY)(DWR 2025a). Under the GSP, approximately 525,000 acres within the Subbasin are eligible to receive a groundwater allocation, which limits the volume of annual groundwater pumping. The groundwater allocation framework includes a transition period from 2022 to 2030, in which a uniform annual allocation is initially established at 1.3 acre-feet (AF) per acre and then, starting in 2024, is subsequently reduced each year by 0.1 AF per acre until 2030 when the allocation would reach 0.6 AF per acre (DWR 2025a). Groundwater will be distributed based on per-acre land ownership for all qualifying lands. For purposes of this PEIR, the long-term groundwater supply available to agricultural users is assumed to be 0.6 AF per acre per year.

4.10.2. Regulatory Context

The following is an overview of the principal statutes, regulations, plans and programs related to hydrology and water quality that may apply to the VCIP.

Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C., § 1251 et seq.) was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The CWA directs states to establish water quality standards for all "waters of the United States" (i.e., jurisdictional waters) and to review and update such standards on a triennial basis. Other provisions of the CWA relate to basin planning including Section 208, which authorizes the preparation of waste treatment management plans, and Section 319, which mandates specific actions for the control of pollution from non-point sources. Section 303 requires states to adopt water quality standards for all surface waters of the United States. Standards are based on the designated beneficial use(s) of the water body. Where multiple beneficial uses exist, water quality standards must protect the most sensitive use. Section 402 mandates that certain types of construction activity comply with the requirements of the U.S. Environmental Protection Agency's National Pollution Discharge Elimination System (NPDES) stormwater program. The U.S. Environmental Protection Agency (USEPA) has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the NPDES Program, to the SWRCB and its nine Regional Water Quality Control Boards. Within the Plan Area, construction activities that disturb one or more acres of land must obtain coverage under the NPDES general construction activity stormwater permit, which is issued by the Central Valley Regional Water Quality Control Board (CVRWQCB) (see detailed discussion on NPDES permit requirements below).

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers regulates the filling or grading of "waters of the United States" and associated wetland resources. (See Section *4.4. Biological Resources* for a full description of Section 404 and related regulatory requirements.)

[1] As discussed below, the GSP identifies the proposed VCIP as a potential agricultural land repurposing project that may be implemented, alongside other initiatives to promote groundwater sustainability in the Subbasin.
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National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities complying with FEMA regulations that limit development in floodplains. FEMA issues flood insurance rate maps for communities participating in the NFIP. These maps delineate flood hazard zones in the community. Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It requires (1) avoidance of incompatible floodplain development, (2) consistency with the standards and criteria of the NFIP, and (3) restoration and preservation of the natural and beneficial floodplain values.

State

Porter-Cologne Water Quality Control Act

Adopted in 1969, the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (Wat. Code, § 13000 et seq.) is California's comprehensive water quality law, establishing an extensive regulatory program and planning and management functions to protect water quality and beneficial uses of the state's water. It established the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs or Regional Boards), whose primary responsibility is the development and implementation of Basin Plans (or Water Quality Control Plans). The Plan Area lies within the jurisdiction of the CVRWQCB (Region 5). The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater resources, although most day-to-day implementation authority is delegated to the various RWQCBs. The Porter-Cologne Act provides for development and periodic review of Basin Plans, which designate beneficial uses and establish water quality objectives (standards) for surface waters and ground waters. Basin Plans also include programs to achieve and maintain water quality objectives and provide the technical bases for establishment of waste discharge permit conditions and enforcement actions related to wastewater treatment facilities and many other activities that may affect water quality.

Pursuant to the authority delegated under CWA Section 303, the Regional Boards issue NPDES discharge permits to manage and monitor point and nonpoint source pollution, and Waste Discharge Requirements (WDRs) to municipal wastewater treatment plants and industrial dischargers to implement Basin Plan policies through discharges to land and water. Discharges into waters of the state that are also waters of the U.S. require a Water Quality Certification (per Section 401 of the CWA) from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 CWA permit. Discharges into all waters of the state, even those that are not also waters of the U.S., require WDRs, or waivers of WDRs, from the RWQCB.

CWA Section 401 requires an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant to obtain a water quality certification (or waiver) from the applicable RWQCB. The RWQCBs primarily implement basin plan policies through issuing waste discharge requirements for waste discharges to land and water. The RWQCBs have also been delegated responsibility for administering the NPDES permit program, which is designed to manage and monitor point and nonpoint source pollution.

Central Valley Regional Water Quality Control Board

In the San Joaquin Valley, including the Plan Area, the state water quality standards are regulated by the CVRWQCB. As noted above, the CVRWQCB establishes beneficial uses and water quality objectives for surface water and groundwater resources within the region through the San Joaquin River Basin Plan. The CVRWQCB also implements the CWA Section 303(d) total maximum daily load (TMDL) process, which consists of

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identifying candidate water bodies where water quality is impaired or limited by the presence of pollutants. The TMDL process is implemented to determine the assimilative capacity of the water body for the pollutants of concern and to establish equitable allocation of allowable pollutant loading within the watershed.

NPDES General Permit for Discharges of Storm Water Associated with Construction Activity

As noted above, the portion of the NPDES program that regulates stormwater discharges associated with construction activities applies to construction sites which disturb over one acre. The NPDES General Permit for Discharges of Storm Water Associated with Construction Activity (Construction Stormwater General Permit or General Permit) applies to all of California. Since the projects under the VCIP would disturb more than 1 acre of land, they will be subject to the General Permit for stormwater discharges. Administration of the General Permit has not been delegated to cities, counties, or Regional Boards, but remains with the SWRCB. Enforcement of permit conditions, however, is the responsibility of Regional Board staff, assisted by local municipal or county staff. Prior to construction grading for a project, applicants are required to file a "Notice of Intent" (NOI) with the SWRCB to comply with the General Permit and prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) which addresses measures to be included in the project to minimize and control runoff during and after construction. The SWPPP is required to specify the site-specific best management practices (BMPs) to control erosion and sedimentation and discharges of other construction-related pollutants (e.g., petroleum products, solvents, paints, concrete) that could contaminate nearby water resources during the construction phase. The SWPPP is also required to contain a summary of the structural and non-structural BMPs to be implemented during the post-construction period. The SWPPP is to be kept on-site during construction and is to be updated each year as project implementation proceeds.

Sustainable Groundwater Management Act

In September 2014, Governor Brown signed the Sustainable Groundwater Management Act (SGMA). The goal of the legislation is to, among other things, provide for the "sustainable management" of California's groundwater basins (i.e., the management and use of groundwater in a manner that can be maintained during SGMA's planning and implementation horizon without causing specified "undesirable results") and to "enhance local management of groundwater." (Wat. Code, §§ 10720.1, 10721(v).) SGMA requires a designated groundwater sustainability agency (GSA) to prepare a GSP for each high- or medium-priority basin (or subbasin), with adoption deadlines of 2020 or 2022 depending on the basin's priority.

As the primary water purveyor in the Subbasin, the District is the designated GSA for the Subbasin. Fresno County serves as the GSA for the portions of the Subbasin that are within the County's jurisdictional boundaries, including the areas within the City of Huron's jurisdictional boundaries, but outside the boundaries of the District. DWR has designated the Subbasin as a critically overdrafted basin. The District, in cooperation with the County, prepared the "Westside Subbasin Groundwater Sustainability Plan" (the GSP), which the County and the District adopted on January 7 and January 8, 2020, respectively. The District resubmitted the GSP to DWR on July 18, 2022. DWR approved the GSP on August 4, 2023. DWR included a list of recommended corrective actions to improve the GSP. Based on the list of corrective actions, the District identified a need for an amendment to the GSP, which was adopted in December 2024 and January 2025 by the District and Fresno County, respectively (2025 GSP Amendment)(DWR 2025a).

The purpose of the GSP is to characterize groundwater conditions in the Subbasin, evaluate and report on conditions of overdraft, establish sustainability goals and sustainability management criteria, and describe projects and management actions the GSA intends to implement to achieve sustainability by 2040. The plans

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and progress toward meeting the sustainability goal - that the Subbasin will be operated within its sustainable yield by 2040 and maintain sustainability through the entire planning and implementation horizon through 2070 - will be evaluated every five years.

The GSP determined that the estimated sustainable yield for the historical period (1989-2015) across the Subbasin is 305,000 AFY (DWR 2025a). The GSA has prepared a groundwater allocation framework to manage demand by equally distributing total annual pumping from the Subbasin based on overlying land acreage. The groundwater allocation framework includes a "transition period" from 2022 to 2030, with an initial uniform annual allocation of 1.3 AF per acre, which is reduced each year by 0.1 AF per acre, starting in 2024, until 2030 when the permanent annual allocation of 0.6 AF per acre will take effect. The groundwater will be distributed based on per-acre land ownership for all qualifying lands.

A GSP five-year update, also known as a periodic evaluation, is an evaluation of the implementation of an approved GSP performed by the GSA. The evaluation is described in a written assessment submitted to DWR and represents a progress report for each evaluation cycle – at least every five years after initial GSP submission. The evaluation summarizes the basin's conditions in relation to the sustainable management criteria established in the GSP, the implementation of projects and management actions, and other information as specified in SGMA and the GSP Regulations. The purpose of the five-year updates is to determine whether GSP implementation is meeting interim milestones and is on track to meeting the sustainability goal for the basin (WWD, 2022b). The District submitted its five-year update, 2025 Periodic Evaluation, to DWR in January 2025. The Periodic Evaluation indicates that current groundwater level conditions generally reflect progress toward groundwater sustainability. (DWR 2025b.) As described in the District's 2025 Periodic Evaluation, substantial progress towards the implementation of Project Management Actions described in the 2022 GSP was made during the first five years of GSP implementation. Over this period, the District prioritized sustainable groundwater management by (1) expanding existing Project Management Actions and (2) developing two new Project Management Actions: Agricultural Land Repurposing, and Desalination and On-Farm Recycling. Agricultural Land Repurposing includes converting agricultural lands to less water-intensive beneficial uses to reduce groundwater demand. This includes clean energy development. The Desalination and On-Farm Recycling Project focuses on developing infrastructure to treat salty Upper Aquifer excess groundwater during wet years, and using the permeate for crop irrigation and applying the resulting concentrate on salt tolerant crops to manage treatment byproduct and store it in the aquifer system. (For additional information regarding the District's 2025 Periodic Evaluation and the GSP, see Appendix F of this PEIR.)

The 2025 GSP Amendment focuses on groundwater management actions that may be implemented by the GSA to achieve sustainability by 2040. GSP Project No. 6, "Agricultural Land Repurposing," identifies the proposed VCIP and the District's Strategic Plan as initiatives to promote groundwater sustainability in the Subbasin. The District's Strategic Plan outlines key strategies to ensure the District achieves long-term groundwater sustainability, preserves economic opportunities for growers and the communities, and protects against undesirable results, such as subsidence. Regarding the proposed VCIP, the GSP provides: "The VCIP is an initiative that focuses on expanding clean and renewable energy infrastructure within California's Central Valley. It aims to support the region's transition to more sustainable energy sources while addressing environmental and economic challenges. . . . The VCIP seeks to align energy development with goals of sustainability and resilience, including the reduction of carbon emissions and groundwater sustainability." Consistent with the VCIP's project description, the GSP further provides: "The District's objective with VCIP is to repurpose drainage-impaired and other agricultural lands for the generation of clean energy to promote

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enhanced agricultural productivity within the District." Overall, the GSP determined that these agricultural land repurposing programs would "enhance the long-term sustainability of groundwater resources by addressing both water use reduction and regional economic transition, ensuring groundwater sustainability, and fostering environmental and community resilience" (DWR 2025a).

Westlands Water District

The District provides water services to agricultural, municipal, and industrial users. The District delivers Central Valley Project (CVP) contract water allocated by the U.S. Bureau of Reclamation. To provide timely, reliable, and affordable water services and to facilitate SGMA implementation, the District provides funding for education and advanced technology, enabling growers to effectively and efficiently use and conserve CVP contract water and groundwater. The District also monitors the quality and quantity of pumped groundwater as part of its Water Management Plan (WWD 2019a).

A key component of the District's Water Management Plan is water conservation. This program consists of the following elements:

- Irrigation Guide for water requirements per crop
- Water Conservation and Management Handbook
- Workshops and meetings on water management information
- Technical assistance and conservation computer programs
- Meter repair and update program
- Groundwater monitoring
- Pump efficiency tests
- Conjunctive use of supplies
- Irrigation System Improvement Program
- Satellite imagery purchased about once every two weeks

As discussed above, the District serves as the GSA for the Subbasin pursuant to SGMA. It is the District's responsibility under SGMA to: prepare a GSP which characterizes groundwater conditions in the Subbasin, evaluate and report on conditions of overdraft, establish sustainability goals and sustainability management criteria, and describe projects and management actions the GSA intends to implement to achieve sustainability by 2040.

Fresno County

Fresno County General Plan

The 2024 Fresno County General Plan (Fresno County 2024b) contains the following goals and policies related to hydrology and water quality that may be relevant to the VCIP:

Open Space and Conservation Element

A. Water Resources

GOAL OS-A To protect and enhance the water quality and quantity in Fresno County's streams, creeks, and groundwater basins

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Policy OS-A.18 **Groundwater Quality Protection**
The County shall protect groundwater resources from contamination and overdraft by pursuing the following efforts.

a. Identifying and controlling sources of potential contamination;
b. Protecting important groundwater recharge areas;
c. Encouraging water conservation efforts and supporting the use of surface water for urban and agricultural uses wherever feasible;
d. Encouraging the use of treated wastewater for groundwater recharge and other purposes (e.g., irrigation, landscaping, commercial, and non-domestic uses);
e. Supporting consumptive use where it can be demonstrated that this use does not exceed safe yield and is appropriately balanced with surface water supply to the same area;
f. Considering areas where recharge potential is determined to be high for designation as open space; and
g. Developing conjunctive use of surface and groundwater.

Policy OS-A.19 **Water Discharge Pollution Mitigation**
The County shall require new development near rivers, creeks, reservoirs, or substantial aquifer recharge areas to mitigate any potential impacts of release of pollutants in storm waters, flowing river, stream, creek, or reservoir waters.

Policy OS-A.20 **Minimization of Sedimentation and Erosion**
The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The County shall discourage grading activities during the rainy season unless adequately mitigated to avoid sedimentation of creeks and damage to riparian habitat.

Policy OS-A.21 **Best Management Practices**
The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff.

Policy OS-A.23 **Wastewater Treatment Standards**
The County shall only approve new wastewater treatment facilities that will not result in degradation of surface water or groundwater. The County shall require treatment to tertiary or higher levels.

Public Facilities and Services Element

C. <u>Water Supply and Delivery</u>

GOAL PF-C To ensure the availability of an adequate and safe water supply for domestic and agricultural consumption.

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Policy PF-C.3 **Surface Water Use**
To reduce demand on the county's groundwater resources, the County shall encourage the use of surface water to the maximum extent feasible.

Policy PF-C.10 **Ongoing Water Supply**
The County shall actively participate, or support the efforts of other local agencies, in the development and implementation of Sustainable Groundwater Management Plans to ensure a sustainable water supply is available to help support agriculture and accommodate future growth.

Policy PF-C.11 **Adequate Sustainable Water Supply**
The County shall approve new development only if an adequate sustainable water supply to serve such development is demonstrated.

Policy PF-C.12 **Limited Groundwater**
In those areas identified as having severe groundwater level declines or limited groundwater availability, the County shall limit development to uses that do not have high water usage or that can be served by a surface water supply.

D. <u>Wastewater Collection, Treatment, and Disposal</u>

GOAL PF-D To ensure adequate wastewater collection and treatment and the safe disposal of wastewater.

Policy PF-D.6 **On-site Sewage Disposal Systems**
The County shall permit individual on-site sewage disposal systems on parcels that have the area, soils, and other characteristics that permit installation of such disposal facilities without threatening surface or groundwater quality or posing any other health hazards and where community sewer service is not available and cannot be provided.

E. <u>Storm Drainage and Flood Control</u>

GOAL PF-E To provide efficient, cost-effective, and environmentally-sound storm drainage and flood control facilities that protect both life and property and to divert and retain stormwater runoff for groundwater replenishment.

Policy PF-E.5 **Impacts to Flood Control Facilities**
The County shall only approve land use-related projects that will not render inoperative any existing canal, encroach upon natural channels, and/or restrict natural channels in such a way as to increase potential flooding damage.

Policy PF-E.6 **Drainage Facility Construction**
The County shall require that drainage facilities be installed concurrently with and as a condition of development activity to ensure the protection of the new improvements as well as existing development that might exist within the watershed.

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Policy PF-E.9 **100-year Flood Protection**
The County shall require new development to provide protection from the 100-year flood as a minimum.

Policy PF-E.11 **Natural Site Drainage Patterns**
The County shall encourage project designs that minimize drainage concentrations and maintain, to the extent feasible, natural site drainage patterns.

Policy PF-E.16 **Minimal Sedimentation and Erosion**
The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

Policy PF-E.20 **Storm Water Drainage Discharges**
The County shall require new development of facilities near rivers, creeks, reservoirs, or substantial aquifer recharge areas to mitigate any potential impacts of release of pollutants in flood waters, flowing rivers, streams, creeks, or reservoir waters.

Policy PF-E.21 **Best Management Practices**
The County shall require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and shall encourage the urban storm drainage systems and agricultural activities to use BMPs.

Fresno County Ordinance Code

Fresno County Ordinance Code, Chapter 15.48 – Flood Hazard Areas, provides regulations for flood hazard reduction for new construction within flood-prone areas as defined in FEMA flood mapping (Fresno County 2023a). Ordinance Code Title 17 – Divisions of Land, requires subdivisions to provide for control of drainage, stormwater runoff, and prevention of erosion and sedimentation (Fresno County 2023a).

Fresno County Solar Facility Guidelines

The Fresno County Solar Facility Guidelines (Fresno County 2017c) contain the following provision related to hydrology and water quality:

2. Information shall be submitted that identifies the source of water for the subject parcel (surface water from irrigation district, individual well(s), conjunctive system). If the source of water is via district delivery, the applicant shall submit information documenting the allocations received from the irrigation district and the actual disposition of the water (i.e., utilized on-site or moved to other locations) for the last 10 years. If an individual well system is used, provide production capacity of each well, water quality data and data regarding the existing water table depth.

A discussion of the consistency of VCIP projects with the Fresno County Solar Facility Guidelines is provided in Section *4.11. Land Use and Planning*.

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Fresno County Improvement Standards

The Fresno County Improvement Standards serve as an engineering reference for Fresno County staff and private parties in the design and construction of improvements for public works projects and private development improvements. The standards include engineering design specifications for construction of streets, water supply systems, storm drainage, and sewage disposal, as well as requirements for geotechnical reports for the proposed improvements (Fresno County 1966).

Fresno County Local Agency Management Program (LAMP)

Pursuant to Water Code section 13291(b)(3), the Fresno County Local Agency Management Program (LAMP) was established in 2017 for the purpose of regulating the design, installation, and operation of on-site wastewater treatment systems (OWTS) within the County. The program covers septic tank and leach field systems for the treatment and disposal of wastewater where conveyance to public sanitary sewers is not available. The Fresno County Public Works and Planning Department is responsible for the review and approval of proposed septic systems to ensure compliance with all applicable standards to protect groundwater quality (Fresno County 2017b).

4.10.3. Environmental Impact Analysis

METHODOLOGY

Evaluation of potential impacts related to hydrology and water quality was based on a review of maps, plans, and published documents that may be relevant to the VCIP Plan Area, including: the General Plan and "General Plan Background Report" for Fresno County; mapping by FEMA; plans and water quality data from the SWRCB and Regional Boards; plans, reports, and data from the District; as well as the Water Supply Assessment (WSA) prepared for this PEIR (see Appendix F). The analysis also considers current policies and regulatory requirements that may apply to VCIP projects, including those identified in *Section 4.10.2. Regulatory Context*, above.

SIGNIFICANCE CRITERIA

Based on Appendix G of the CEQA Guidelines, implementation of the VCIP would be considered to result in a significant impact related to hydrology or water quality if it would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

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c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   i) Result in substantial erosion or siltation on- or off-site;

   ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

   iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

   iv) Impede or redirect flood flows.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.10.3.1. Direct and Indirect Effects

Valley Clean Infrastructure Plan

Impact HYD-1. Violate Water Quality Standards or Waste Discharge Permits

Implementation of the VCIP Energy Resource and Infrastructure Plans would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. (*No Impact*)

VCIP Energy Resource and Infrastructure Plans

Drinking Water Standards. Drinking water standards are implemented by the SWRCB and apply to local water distribution systems for domestic water supply. No domestic water distribution systems are anticipated to be installed for potential projects under the VCIP. Since drinking water for solar/energy storage facility employees would be provided by bottled water delivered by truck, the drinking water standards would be applicable at the water bottling plant and would not apply to the VCIP. (See section *4.19. Utilities and Services* for a detailed discussion of water supply.)

Surface Water Quality Standards. As discussed in Section *4.10.2 Regulatory Context*, the SWRCB identifies water bodies where water quality is impaired or limited by the presence of pollutants. Within the Plan Area, a segment of Panoche Creek is listed as a water quality limited river segment that is impaired by mercury, sedimentation/siltation, and selenium (SWRCB 2024). Within the VCIP Plan Area, there are two Development Focus Area (DFA) sites adjacent to Panoche Creek. However, any solar or energy storage projects constructed on those sites would avoid encroachment upon the creek for reasons of constructability and to avoid aquatic and riparian habitats within and along the creek. The implementation of the SWPPPs for those projects would prevent stormwater runoff from leaving the project sites and adding to sediment or contaminant loads in the creek. Similarly, water from the creek would not be used or affected by the VCIP projects. As such, there is no potential for the VCIP projects to exacerbate or be adversely affected by the pollutant loads in Panoche Creek. Therefore, implementation of the VCIP would not violate any water quality standards or WDRs, or otherwise substantially degrade surface water quality. (See Impacts HYD-3 and HYD-4 for discussions of water quality impacts during construction and project operation.)

Stormwater Standards. The CVRWQCB has not established numeric standards for surface water runoff quality; therefore, no surface water quality standards apply to the project. (See Impacts HYD-3 and HYD-4 for discussions of water quality impacts during construction and project operation.)

Wastewater Treatment Standards. Under Impact HYD-1, the only potential for groundwater quality impact is from wastewater disposal, which is entirely addressed through adequate septic system design pursuant to WDRs. WDRs refer to standards applied to local wastewater treatment facilities by the Regional Board to limit quantities and qualities of wastewater discharge. Most, if not all, VCIP solar facilities and energy storage facilities would utilize on-site septic tanks and leach fields for disposal of wastewater associated with their Operations and Maintenance (O&M) buildings. The substations, transmission lines and gen-tie lines would be unstaffed and would not generate wastewater. It is expected that the average staff level for a typical 250-megawatt (MW) solar/BESS facility would have 10 operational staff on-site per day, along with a daily average of five occasional maintenance workers, for a daily average of 15 workers in total. Based on a peak wastewater generation rate of 50 gallons per day (gpd) per person, the average peak daily volume of wastewater generated would be approximately 750 gallons. Staffing for stand-alone energy storage facilities would be up to five personnel for the largest facilities, resulting in daily wastewater generation of about 250 gallons. These volumes are well below the 2,500 gpd threshold where WDRs would be required for a small community system from the Regional Board. To ensure that the project soils would be capable of supporting disposal of the wastewater effluent generated by the O&M facilities, the planned septic systems would be designed consistent with the Fresno County Plumbing Code, the Fresno County Improvement Standards, and the design criteria of the Fresno County LAMP, as approved by the SWRCB (Fresno County 2017b). Adherence to these requirements would ensure that soils in the planned leach field areas would be capable of adequately accommodating the wastewater effluent generated by the VCIP facilities. In cases where the soils have insufficient percolation characteristics, engineered systems would be employed. The septic systems would be subject to the approval of the Fresno County Public Works and Planning Department, which would ensure compliance with all applicable standards to avoid impacts to groundwater quality. During construction, sanitary needs would be provided by portable chemical toilets which would be serviced by an outside contractor as needed. Therefore, the solar and energy storage projects under VCIP would meet applicable wastewater treatment standards and there would be *no impact* in terms of groundwater quality.

Implementation of the VCIP Energy Resource and Infrastructure Plans would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality (*no impact*).

Mitigation Measures: No mitigation is required.

Impact HYD-2. Effects on Groundwater Use and Sustainability

Implementation of the VCIP Energy Resource and Infrastructure Plans would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge or impede sustainable groundwater management of the basin. (*Less-than-Significant Impact*)

The VCIP Would Be Implemented Pursuant to the GSP and Promote Sustainable Groundwater Management of the Subbasin

As provided in *Section 4.10.2* (Sustainable Groundwater Management Act), the GSP identifies the proposed VCIP as a potential agricultural land repurposing project intended to promote sustainable groundwater management of the Subbasin. The GSP provides that implementing the VCIP and the District's Strategic Plan would "enhance the long-term sustainability of groundwater resources by addressing both water use reduction and regional economic transition, ensuring groundwater sustainability, and fostering environmental and community resilience." These complementary management actions are "intended to promote reduced groundwater demand while supporting the local economy through clean energy development" (DWR 2025a). Additionally, as described above and in Appendix F of this PEIR, the District's 2025 Periodic Evaluation indicates that current groundwater level conditions generally reflect progress toward groundwater sustainability (DWR 2025b). Thus, as the VCIP would be implemented pursuant to the GSP to promote groundwater sustainability in the Subbasin, it would not impede sustainable groundwater management of the Subbasin. As further demonstrated below, implementation of the VCIP would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge.

VCIP Energy Resource Plan

VCIP solar and energy storage facilities would involve limited use of groundwater during the construction, operation, and decommissioning phases, as discussed below.

Project Construction

During grading and construction for solar and energy storage projects, water would be regularly applied to exposed soils and internal access driveways for dust suppression. During earthwork, water would also be required in soil conditioning for optimum moisture content. As discussed in Chapter *2. Project Description*, it is estimated that a typical 250-MW solar project (with 250-MW battery storage facility) would require a total of 240 AF of water (at 0.15 AF per acre) over an approximately 1,600-acre site during its one-year construction period, or approximately 1 AF per MW. It is anticipated that all construction water would be obtained from existing agricultural wells in the Plan Area.

Current groundwater pumping in the area varies substantially from year to year depending on availability of CVP contract water delivered through the District's water distribution system. During years when the District receives most of its CVP water allocation, groundwater pumping provides a relatively minor portion of irrigation requirements. During the 10 years between 2015 and 2024, the District received an average of 36 percent of its contract water. In 2014, 2015, 2021 and 2022, the District received a "zero" allocation of CVP contract water, and in 2016 received 5 percent of its CVP contract water (WWD 2025a). To meet the irrigation

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requirements of planted crops under such conditions, private landowners on non-District-owned lands augment reduced CVP supplies with pumped groundwater or by acquiring supplemental water. But since the groundwater is relatively high in salinity, the generally low salinity tolerant crops limits the effectiveness of blending groundwater with higher quality CVP contract water. Due to the unavailability of CVP contract water during the years noted above, combined with the quality and quantity constraints on groundwater pumping, an average of approximately 189,640 acres within the District were fallowed annually between 2015 and 2024, representing approximately 34 percent of the irrigable farmland[2] in the District (WWD 2025a).

As indicated above, SGMA requires all high- or medium-priority basins identified by DWR to be managed by a GSA. The VCIP Plan Area is located entirely within the Westside Subbasin. As the primary surface water supplier and local agency within the Subbasin, the District is the designated GSA for the Subbasin. Fresno County also serves as the GSA for the portions of the Subbasin that are within the County's jurisdictional boundaries and outside the District's boundaries.

DWR designated the Subbasin as critically overdrafted, which required the District to prepare a GSP by January 31, 2020. The Fresno County Board of Supervisors adopted the Subbasin GSP on January 7, 2020. On January 8, 2020, the District's Board of Directors adopted the GSP for the 622,215-acre Subbasin (which includes the District's entire 614,700-acre service area). The GSP determined that the estimated sustainable yield for the historical period (1989-2015) across the Subbasin is 305,000 AFY (DWR 2025a). To manage groundwater during the initial years of GSP implementation, the GSA established an interim allocation of groundwater extraction intended to manage demand by equally distributing total annual pumping from the Subbasin based on overlying land acreage. The groundwater allocation framework includes a transition period from 2022 to 2030, in which a uniform annual allocation is initially established at 1.3 AF per acre, to be subsequently reduced each year by 0.1 AF per acre, starting in 2024, until 2030 when the allocation would reach the long-term limit 0.6 AF per acre per year. Groundwater will be distributed based on per-acre land ownership for all eligible lands (DWR 2025a, p. ES-13). For purposes of this PEIR, groundwater supply available to the reasonable and beneficial uses associated with VCIP implementation is assumed to be up to the long-term allocation of 0.6 AF per acre per year.

As described in Appendix F and Section *4.17. Utilities and Service* Systems, the total water demand from construction of VCIP energy and infrastructure projects would be approximately 20,838 AF over approximately 136,000 acres, or an average of 0.153 AF per acre (see Table 2 in GSA in Appendix F of this PEIR). It is estimated that the full buildout of the VCIP Energy Resource Plan would require a total of 20,400 AF of groundwater for construction during the 10-year buildout period. Based on experience with similar projects located on sites with similar physical conditions, the water demand for preparation and construction of a typical 1,600 -acre solar facility project site would average 0.15 acre-feet per acre (AF/acre), resulting in a total consumption of 240 AF of water during a 12-month construction period (see Appendix F of this PEIR and Section *4.17. Utilities and Service Systems*). Between years 2029 through 2032, construction demands would peak at 2,227 AFY, with approximately 14,771 acres of construction during each of these peak years. This volume of groundwater pumping represents 25 percent of (i.e., 4 times less than) the 0.6 AF per acre per year allocation established by the GSP to achieve sustainable groundwater management and ensure pumping is within the long-term sustainable yield.

[2] Based on approximately 568,000 irrigable acres within the District, of which 525,000 acres eligible for groundwater allocation under the GSP.

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As described in Appendix F and Section *4.17. Utilities and Service* Systems, groundwater would be available for construction on potential projects on private and District-owned lands. Groundwater from agricultural wells on the project site or nearby would be available on private lands pursuant to groundwater allocations of 0.6 AFY/acre associated with those lands (i.e., an annual allocation of 38,400 AFY for 64,000 acres of private lands). Groundwater from agricultural lands in the vicinity would be available for use on District-owned lands through District-approved groundwater transfers (see Appendix F). Relative to the GSP's long-term allocation of 0.6 AFY/acre, the limited quantities of groundwater pumped during construction would be consistent with and promote sustainable groundwater management of the Subbasin and not exceed the sustainable yield in the Subbasin, and therefore would not contribute to the depletion of groundwater or contribute to the lowering of local groundwater levels. As such, the impact of VCIP project construction on groundwater resources would be less than significant.

Solar Facility Operation

During operation of each solar facility, non-potable water will be required for activities such as panel cleaning, watering sheep (if the facility owner/operator elects to employ sheep grazing), washing or rinsing equipment, and other operational uses. As described in Chapter *2. Project Description*, the combined water usage from all operational activities is estimated to be 6.05 AF per year over a typical 1,600-acre project site, or 0.004 AF per acre per year or 0.6 AF per quarter-section (160 acres). For context, the average irrigation demand for crop production within the District is approximately 2.6 AF per acre per year, or 416 AF per quarter section.

Operational water supplies would be obtained from various sources depending on land ownership. For solar and energy storage facilities located on privately-owned lands, operational water supplies would be provided by the underlying landowner from its surface and/or groundwater allocations. If the District cannot provide the surface water supply from its CVP contract, operational water would be obtained from existing on-site agricultural wells or from surface water transferred into the District. As provided in Appendix F and Section *4.17 Utilities and Service Systems*, it is conservatively assumed that all non-potable operational water supplies for energy projects on private lands would be obtained from groundwater pursuant to the long-term groundwater allocation of 0.6 AFY/acre associated with those lands. These allocations are consistent with the Subbasin's long-term sustainable yield and are more than sufficient to meet operational demands of approximately 0.004 AFY/acre.

For solar facilities on lands purchased or leased (or with easements) from the District, the District would provide operational supplies with M&I CVP contract water. The District's "Article 19, Regulations Regarding the Application for and use of Municipal and Industrial Water within Westlands Water District" establishes an annual allocation of CVP contract water for PV solar projects (WWD 2023b). Solar PV facilities on District-owned or reconveyed lands are eligible to receive up to 5.0 AF per quarter-section per year for operational uses. As described in Appendix F, during years of extreme shortage of surface water supplies, the District would continue to provide M&I supplies to solar and energy storage facilities on District-owned lands through its health and safety allocation from USBR. As noted above, the operational water usage rate at a typical 250-MW solar and energy storage facility is estimated to be 0.67 AF per quarter-section per year, which is well within the District's maximum annual allowance of 5.0 AF per quarter-section. As explained in Appendix F and Section *4.17. Utilities and Service Systems*, project proponents on District-owned lands may also purchase supplemental surface water and groundwater credits from other landowners for use on District-owned lands.

Small quantities of potable water would be required at the solar facilities for domestic uses. Potable water would be delivered to the facility by a commercial water delivery service. The typical 250 MW solar plus

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energy storage facility would include a water storage tank for potable water which would provide for drinking, hand washing, and toilet flushing. The water tank would be refilled regularly at a rate of approximately 5,000 gallons per month. The potable water would be provided by a commercial supplier who would purchase it from a municipal water source outside the Subbasin.

Increases in impervious surface coverage of VCIP project sites would not be substantial, with hard surfaces only created at the O&M facility, substation, and battery storage facilities, and at the equipment pads that would be widely dispersed throughout the project site. As provided under Impact HYD-3, at least 90 percent of each typical project site would consist of permeable surfaces. The solar panels themselves would be elevated above ground level, with vegetation (annual grasses) covering the permeable soils beneath and around the solar arrays. The solar arrays would not displace runoff, and rainwater falling from edges of the panels would spread to vegetated areas beneath the arrays and percolate into the ground on-site. The insubstantial addition of impervious surfaces would not prevent rainfall from percolating into the underlying soils. The runoff from these surfaces would be displaced to immediately adjacent vegetated areas and would be readily absorbed into the ground. Therefore, the impact of operation of the VCIP energy resource projects on groundwater recharge would be less than significant.

Decommissioning

Untreated water would be required during decommissioning of each solar and energy storage facility. Similar to construction, it is anticipated that groundwater would generally be used for decommissioning, although supplemental surface water may be available. The volume of water required is expected to be less than the volume required during the construction phase because vegetative cover would be retained on each site during deconstruction, and there would be little exposed soil that would require watering for dust suppression (see Appendix F and Section *4.17 Utilities and Service Systems* for additional detail). The exposed areas would comprise approximately 10 percent of each solar facility site and would include the areas where foundation pads (e.g., at former substations, energy storage facilities, and O&M buildings) and gravel driveways would be removed, where soils would be tilled and loosened to textures suitable for cultivation. Similarly, water would not be required for soil conditioning during grading. The source of water during decommissioning is expected to be from the existing agricultural wells located in the vicinity of each facility, as described above regarding construction. The total groundwater pumped during decommissioning is expected to be substantially less than the estimated 250 AF required during construction of a typical 250-MW solar and energy storage project located on an approximately 1,600-acre site. Even assuming that water demand during decommissioning would be the same as during construction (i.e., approximately 20,400 AF), this would represent an average volume of about 0.15 AF per acre. This quantity is substantially less than the 0.6 AF per acre per year allocation established by the GSP to achieve sustainable groundwater management and ensure pumping is within the long-term sustainable yield. Therefore, the limited water demands during decommissioning would be consistent with and promote sustainable groundwater management of the Subbasin. The groundwater pumped during decommissioning would not substantially decrease groundwater supplies or contribute to the lowering of the local groundwater table. Therefore, the impact of VCIP project decommissioning on groundwater resources would be less than significant.

Summary

All groundwater use related to implementation of the potential solar/BESS projects under the VCIP would be consistent with the GSP and well below the 0.6 AF per acre per year allocation established by the GSP to achieve sustainable groundwater management and ensure pumping is within the long-term sustainable yield.

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As such, implementation of the solar/BESS projects would not substantially decrease groundwater supplies. As at least 90 percent of each project site would be retained in permeable surfaces, these projects would also not interfere substantially with groundwater recharge.

Construction of all 21,000 MW of the VCIP solar and energy storage projects would require a total of 20,400 AF of groundwater over an approximately 10-year period. The existing irrigation demand on the 64,000 acres of private lands within the DFAs is approximately 166,400 AF per year (based on irrigation demand of 2.6 AF/ac), or 1,664,000 AF over a 10-year period. Under the GSP's long-term allocation of 0.6 AFY of groundwater per acre, the owners of these 64,000 acres are entitled to pump 38,400 AFY, or 384,000 AF over a 10-year period. Thus, as the total groundwater use associated with construction of the potential energy/BESS projects under the VCIP over a ten-year period is substantially less than the *annual* quantity of groundwater that may be sustainably produced from the privately-owned DFA lands, these VCIP projects would not substantially decrease groundwater supplies. (The 72,000 acres of District-owned lands in the VCIP development areas have no irrigation water demand under existing conditions.)

Operation and maintenance of VCIP solar and energy facilities would require about 0.0042 AF per acre per year, or 572 AFY for all VCIP facilities upon completion. For the same reasons provided above, the use of this insubstantial quantity of groundwater would not substantially decrease groundwater supplies.

Implementation of the VCIP energy resource plan would not substantially decrease groundwater supplies or substantially interfere with groundwater recharge, and thus the impact of the VCIP implementation on sustainable groundwater management of the Subbasin would be *less than significant*.

VCIP Infrastructure Plan

During construction of the collection substations, gen-tie lines, and transmission lines, water would be needed for dust suppression and cleaning, and in mixing of concrete for tower foundations. Non-potable water would be purchased from local water sources and hauled to each tower site, pulling and tensioning site, or staging area. As described in Chapter *2. Project Description*, the overall acreage subject to temporary disturbance would be about 3,000 acres and would occur at isolated locations over 5 substation sites, 260 miles of gen-tie corridor, and 79 miles of transmission corridor. Assuming a water usage rate similar to construction of the VCIP solar and energy storage facilities, or 0.15 AF per acre, the total water demand for infrastructure construction would be approximately 450 AF. For context, this would be equivalent to the irrigation requirements of about 173 acres of agricultural land for one year (assuming the average District water application rate of 2.6 AFY per acre). If all the water needed for infrastructure construction were obtained from groundwater, this insubstantial amount of groundwater pumping distributed over the length of the Plan Area would have virtually no effect on groundwater levels or the sustainable groundwater management of the Subbasin.

During operation of the infrastructure facilities, water use for maintenance and repair activities would also be insubstantial. While the infrastructure elements would be constructed over the groundwater basin of the San Joaquin Valley, the total area of impervious surfaces resulting from the infrastructure projects would be only about 150 acres dispersed over many transmission tower and substation equipment footings, which would not interfere with groundwater recharge.

Implementation of the VCIP infrastructure plan would not substantially decrease groundwater supplies or substantially interfere with groundwater recharge or the sustainable groundwater management of the subject basin, and thus the impact of the VCIP implementation on sustainable groundwater management of the basin would be *less than significant*.

Overall Impacts of VCIP Implementation

Implementation of the VCIP Energy Resource and Infrastructure Plans would not result in a substantial reduction in net groundwater use compared to existing conditions, would not interfere substantially with groundwater recharge, and would not impede sustainable groundwater management of the basin. Therefore, the overall impact of VCIP implementation in this regard would be *less than significant*.

Mitigation Measures: No mitigation is required.

Impact HYD-3. Alteration of Drainage Patterns, Erosion, Stormwater, Flooding

Implementation of the VCIP Energy Resource and Infrastructure Plans would not substantially alter the existing drainage patterns of the Plan Area, would not add substantial impervious surfaces, and would not result in substantial erosion or siltation on or off the project sites, or substantially increase the rate or amount of surface runoff or flooding on or off the project sites, or contribute runoff which would exceed the capacity of stormwater systems, or result in substantial additional sources of polluted runoff, or impede or redirect flood flows. (*Less-than-Significant Impact with Mitigation*)

VCIP Energy Resource Plan

Alteration of Existing Drainage Pattern

Several natural drainage courses emerge from the foothills of the Diablo Range and enter the western portion of the Plan Area (see Figure 4.10-1). The named drainages are described in Section *4.10.1 Environmental Setting* and include Panoche Creek, Tumey Gulch, Arroyo Ciervo, Arroyo Hondo, Cantua Creek, Salt Creek, Martinez Creek, Domengine Creek, and Arroyo Pasajero. Except for Panoche Creek, these creeks pass under Interstate-5 and terminate west of the San Luis Canal / California Aqueduct. Panoche Creek crosses under Interstate-5 and over the Aqueduct, terminating approximately five miles northeast of the Aqueduct within the Plan Area. There are no other natural drainage courses in the Plan Area east of the Aqueduct. Other water courses in the vicinity include the Kings River to the southeast, Fresno Slough to the east, the San Joaquin River to the northeast. The Third Lift Canal runs adjacent to the Plan Area on the north, and numerous land owner irrigation ditches and swales occur throughout the Plan Area.

Most of the drainage courses named above pass through or alongside DFA lands which are planned for solar and energy storage facilities. Since the typical 250 MW solar and energy storage projects that will be proposed for the Plan Area would cover approximately 1,600 acres, each project will have sufficient design flexibility to avoid direct disturbance to natural water courses within or adjacent to the project sites. Given the virtually flat terrain of the Plan Area, it is expected that the energy projects would not substantially modify the ground contours or surface drainage patterns on their sites, or alter the existing irrigation ditches and swales that run through and adjacent to the project sites. Avoidance of existing drainage courses and minimal site grading are common characteristics of solar and energy storage projects that have been completed within the District's service area (including the Plan Area) and elsewhere in the San Joaquin Valley over the past 15 years.

The terrain of the VCIP Plan Area is virtually flat, with an average gradient of 0.2 to 0.4 percent depending on location. Under current conditions, rainfall percolates into the soil with little or no runoff. The energy projects would result in no substantial modification to existing site grades. During normal rain events, runoff from impervious surfaces would be absorbed by the adjacent vegetated ground and percolate into the soil. During more intense or prolonged storm events, the ground would become saturated and relatively minor volumes of stormwater may temporarily pond on the surface and gradually evaporate or percolate into the ground, as occurs under existing conditions. Given the virtually level ground and almost complete coverage of each solar project site with permeable soils to absorb rainwater, conditions allowing for stormwater to be mobilized and concentrated in sustained runoff flows are not expected to occur.

Addition of Impervious Surfaces

The VCIP energy projects would introduce insubstantial impervious surface coverage. The solar arrays would occupy approximately 90 percent of the site area and would be mounted on steel posts, with the ground beneath retained in vegetated cover. All planted vegetation would receive sufficient rainfall for germination and growth during the winter and spring of each year. The vegetation would senescence (die back) during the summer and fall but would remain in place to stabilize the soil. The vegetation would also receive sufficient sunlight for photosynthesis. As shown in Figure 2.5-1 Typical Solar Arrays, the rows of solar arrays would be widely separated to avoid casting shade on each other when the sun is low in the sky in the early morning and late afternoon. When solar arrays are in the horizontal position (at noon), about 67 percent of the solar field is not covered by solar panels and receives direct sunlight. Areas shaded at noon receive direct sunlight at various times in the mornings and afternoons as the trackers rotate the solar panels to follow the sun across the sky.

Impervious surfaces would consist of transformer and inverter pads, small operations buildings, footings and pads for on-site substations, switchyards, and battery storage containers, and small asphalt areas for handicapped parking. These structures would occupy a total of only approximately 5 acres (less than one percent of the project site). Internal driveways would typically take up the remaining 9 percent of each site and would be composed of permeable gravel or compacted earth to allow for some percolation of rainfall into the underlying soil. With at least 90 percent of each project site retained in permeable surfaces, the resulting increases in stormwater runoff would be insubstantial. The limited amount of runoff from impervious surfaces would be displaced to immediately adjacent vegetated areas and readily absorbed into the ground. The solar arrays would not displace runoff, and rainwater falling from edges of the panels would spread to vegetated areas beneath the arrays and percolate into the ground.

Erosion and Siltation

Each solar and energy storage project would involve site clearing, rough grading, soil compaction, establishment of temporary construction staging areas, and trenching for solar arrays, and construction of internal access roads. Since the existing ground is virtually level, solar and energy storage development can be accommodated without large-scale grading. Ground preparation would include tilling and minor grading to smooth out existing agricultural furrows, followed by compaction with rollers. Finished grades would be designed to provide for positive site drainage. As discussed in Chapter *2. Project Description*, site-clearing and soil preparation would occur incrementally and would not take place until a given area is needed for the next construction phase. Vegetative cover would be retained as long as possible to minimize exposed soils and reduce potential for erosion and wind-blown dust.

Once vegetation is removed, the exposed and disturbed soil would be susceptible to erosion from wind and rain, although the potential for sediment transport would be minimized by the flat terrain. To avoid or substantially reduce water quality impacts, a comprehensive erosion control and water pollution prevention program would be carried out during site clearing, grading, and construction of each project. This program would follow the detailed BMPs specified in the SWPPP required to be implemented for each project. The SWPPPs would specify such practices as: designation of restricted-entry zones, sediment tracking control measures (e.g., crushed stone or riffle metal plates at construction entrances), truck washdown areas, diversion of runoff away from disturbed areas, protective measures for sensitive areas, outlet protection, mulching for soil stabilization during construction, and revegetation upon completion of construction within a given area. The SWPPPs would also prescribe treatment measures to trap sediment once it has been mobilized, at a scale and density appropriate to the size and slope of the catchment area. For solar development, these measures would typically include: straw bale barriers, straw mulching, fiber rolls and wattles, silt fencing, and/or siltation or sediment ponds. The entire solar facility sites would be vegetated to prevent erosion and provide dust control. The exposed areas would be planted with an approved native seed mix that would contain only "low water use" plant species, thus minimizing water use, discouraging weed infestation, and providing habitat value for native wildlife species. Seeding would be performed by a mechanical seed drill which would plant seeds in a continuous stream in furrows at a uniform rate and at controlled depth and then cover the planted seeds with soil. The reestablished vegetative cover would stabilize the soils and minimize the potential for post-construction erosion.

As discussed in Section *4.10.2. Regulatory Setting*, the VCIP projects will be subject to the USEPA's NPDES permit requirements for construction activities. These are implemented at the state level through the General Permit, as administered by the SWRCB and the RWQCB. Prior to construction grading for each project, the applicants will be required to file a NOI with the SWRCB to comply with the General Permit and prepare a SWPPP. As discussed above, the SWPPPs would detail the treatment measures and BMPs to control pollutants that will be implemented and complied with during the construction and post-construction phases of development. SWPPPs would also be required for the decommissioning phases at the end of the useful life of each solar and energy storage facility and would similarly specify BMPs to be implemented during decommissioning.

For each project, the construction contracts for the construction and decommissioning phases would include the requirement to implement the BMPs in accordance with the SWPPPs. The SWPPPs would identify the responsible entities for both the construction and post-construction periods. The SWPPPs are to be kept on-site during construction, where they would be subject to inspection by Regional Board staff. The SWPPPs are to be updated each year while construction and decommissioning are ongoing.

With implementation of the comprehensive erosion and sediment control plans for each solar and energy storage project, as provided under existing regulations requiring the implementation of project drainage and erosion control measures, the potential erosion and sedimentation impacts associated with implementation of the VCIP Energy Resource Plan would be *less than significant*.

Stormwater Runoff and Flooding

Each VCIP project would be subject to Fresno County Ordinance Code Title 17 which requires projects to provide for control of drainage, stormwater runoff, and prevention of erosion and sedimentation, to be implemented during review of construction plans and specifications prior to issuance of grading and building permits. The project proponent would be required by Fresno County to retain a qualified civil engineer to prepare a hydrology study which would determine potential flood depths at the site and make recommendations for avoiding or mitigating potential flooding impacts. These may include recommendations for construction of detention basins to capture any overland stormwater flows and to provide flood storage for overbank flows from adjacent drainage courses and canals. Any increase in storm flows would be accommodated by drainage infrastructure to be incorporated into each project. Therefore, potential project impacts related to increased stormwater runoff or flooding potential would be *less than significant*.

As discussed in Chapter *1. Introduction*, several potential agencies could serve as lead agencies for approval of various elements of the VCIP. For projects subject to Fresno County's permit approval, the County's drainage and flood control requirements would ensure that drainage and flooding impacts would be substantially reduced or avoided. For VCIP solar and energy storage projects that may not be subject to the County's approval, Mitigation Measure HYD-1 is identified below to ensure that drainage and flood control measures are applied to all VCIP energy resource projects.

Stormwater Drainage Capacity and Potential for Polluted Runoff

Impervious coverage at each project site would be insubstantial and would not significantly affect runoff patterns at each site. The irrigation ditches and swales that run through and adjacent to many sites were designed and constructed to convey irrigation water through the area. With the advent of drip irrigation and other improvements, most of these ditches are no longer utilized for water conveyance and would provide incidental storage for irrigation return flows and stormwater runoff. In some areas there are drainage ditches that formerly conveyed irrigation return flows to tailwater ponds, which are now dry and may capture incidental stormwater flows. The VCIP solar and energy storage projects would not require internal stormwater drainage systems since most rainfall would percolate directly into the ground at each site. Given the insubstantial areas of impervious surface to be introduced by the projects, there would be little, if any, additional runoff generated by the projects under normal rainfall conditions (i.e., non-major storm events). To accommodate flows from major storm events, the projects would potentially include the placement of detention basins at the down-gradient borders of the project to capture any overland stormwater flows and to provide storage for overbank flooding from the adjacent canals. Any such drainage improvements to be incorporated into the projects would be identified in a project-specific hydrology study per the requirements of Mitigation Measure HYD-1.

Regarding the issue of polluted runoff, the VCIP solar and energy storage projects would not introduce substantial sources of stormwater pollutants, such as oil, grease, metals, and debris typically associated with stormwater pollution generated on urban streets and parking lots. During construction, the potential for leaks of oil or lubricants to result in polluted runoff would be insubstantial due to implementation of BMPs required under the project SWPPPs. During operation of the solar and energy storage facilities, the potential for leaks from maintenance vehicles and equipment used at the facilities would be addressed through proper maintenance practices and would not be substantially different in nature or quantity from those expected from farm machinery used in the Plan Area under pre-project conditions. Also, as discussed in Section *4.9. Hazards and Hazardous Materials*, each VCIP solar and energy storage project would require preparation and

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implementation of a Hazardous Materials Business Plan (HMBP) which would ensure safe handling of hazardous materials at each site and would provide for effective response and cleanup in the event of an accidental release of hazardous materials. Therefore, the impacts associated with the potential for additional sources, rates, or amounts of polluted runoff to be generated by VCIP projects would be less than significant.

In summary, any impacts associated with the potential for the VCIP solar and energy storage projects to create or contribute runoff water that would exceed the capacity of stormwater drainage systems or result in substantial additional sources of polluted runoff would be *less than significant*.

Impede or Redirect Flood Flows

According to the Flood Insurance Rate Maps (FIRM) covering Fresno County, portions of the VCIP Plan Area lie within the mapped 100-year and 500-year flood zones designated by FEMA. As shown in Figure 4.10-1, flooding during the 100-year (1% Annual Chance Flood Hazard) event would be expected to occur mainly along the drainage courses in the western portions of the Plan Area, and in scattered locations within the low-lying areas along the eastern boundary of the Plan Area. Part of the northeastern portion of the Plan Area would also be subject to flooding during the 500-year storm event (FEMA 2009).

Since substantial areas within the DFAs are in mapped flood-prone areas, it is expected that some solar and energy storage projects would be at least partially subject to flooding during the 100-year event, and to a lesser extent, the 500-year event. Based on hydrologic modeling conducted for recently approved renewable energy infrastructure projects within the Plan Area, the depth of flooding in the flood-prone areas is expected to be less than 1 foot, with most flood-prone areas subject to flooding depths of less than 0.5 feet (CEC 2025b).

The typical solar and energy storage project would result in less than one percent impervious surface coverage over the entire project site. Most of the remaining area of the project sites would be covered with arrays of solar modules mounted on steel posts such that the modules themselves are positioned above flood elevations. The impervious elements that would be subject to flooding include solar mounting posts, power conversion station (PCS) pads, O&M buildings, substation pads and equipment, battery storage containers, and fence posts. (The typical project would include 250 MW of solar PV generating capacity and 250 MW of battery storage capacity.) If an entire project site was subject to flooding, the O&M building, PCS pads, substation equipment, and battery containers would need to be placed on raised pads above flood elevation. This would result in less than one percent reduction in flood storage and conveyance capacity, which would result in insubstantial displacement of flood flows. Projects could be designed to place larger structures requiring impervious surface coverage, such as O&M buildings, project substations, and battery storage systems, outside the flood-prone areas of the site, making it unlikely that project sites would be entirely located in the floodplain. Given that flood depths are expected to be less than 0.5 foot, on average, and the likelihood that most projects would have sufficient space to locate structures outside the floodplain, the potential for any VCIP project to impede or redirect flood flows would be insubstantial.

For stand-alone energy storage projects, the largest projects are expected to have a capacity of up to 1,150 MW and would cover an area of up to 50 acres. Up to 50 percent of the battery sites would be covered with battery structures, which could impede or redirect flood flows. However, the stand-alone battery storage facilities are expected to be located near the collection substations to minimize transmission distances between the battery facilities and the substations. Four of the five substations are located well outside flood-prone areas, and it is expected that the stand-alone battery facilities would likewise be sited to avoid lands subject to flooding. Although collection Substation 5 would be located within the edge of a flood zone, nearby DFAs located outside the flood zone are available for energy storage. Therefore, the potential for stand-alone battery facilities to impede or redirect flood flows is expected to be insubstantial.

To address potential flooding impacts, the VCIP energy projects would be subject to Fresno County Ordinance Code Title 17, which requires projects to provide for control of drainage, stormwater runoff, and prevention of erosion and sedimentation during review of construction plans and specifications prior to issuance of grading and building permits. Each project proponent would be required by Fresno County to retain a qualified civil engineer to prepare a hydrology study which would determine potential flood depths at their site and make recommendations for avoiding or mitigating potential flooding impacts. This would include possible recommendations for avoiding placement of structures within flood zones and/or setting any affected structures on raised foundation pads above the calculated flood elevations. As discussed above, volume of displacement by VCIP structures during a 100-year or 500-year event would be insubstantial and the impact in terms of impeding or redirecting flood flows would be less than significant. However, as discussed above, Mitigation Measure HYD-1 has been identified to provide for drainage and flooding mitigation for all VCIP development, particularly projects that may not be subject to Fresno County permit authority.

In summary, the VCIP solar and energy storage projects would not substantially alter the drainage pattern of the Plan Area, and would not add substantial impervious surfaces. Therefore they would not result in substantial erosion or siltation, substantially increase the rate or amount of surface runoff or flooding, contribute runoff which would exceed the capacity of stormwater systems or result in polluted runoff, nor impede or redirect flood flows within or outside the Plan Area. As discussed above, the potential impacts resulting from implementation of the VCIP Energy Resource Plan related to drainage patterns, erosion, stormwater, and flooding would be *less than significant*.

VCIP Infrastructure Plan

Alteration of Existing Drainage Pattern

No substations or connecting transmission lines would be located near existing creeks; however, some gen-tie lines west of the Aqueduct may cross existing drainage courses in that area. Also, the connecting transmission line between Substation 3 and the planned PG&E Manning Substation would cross Tumey Gulch. Existing creeks would be largely avoided, and the crossing of Tumey Gulch could be readily accommodated by spanning the creek and placing transmission towers well back from the creek banks. Similarly, existing irrigation canals and ditches would also be avoided by placing substations and transmission towers well outside these features. Given the flatness of the terrain and the relatively small footprints of the substations and very small footprints of the transmission towers, the grading and excavation involved in their construction are insubstantial and would not alter existing drainage patterns. Therefore, the potential impacts of VCIP infrastructure upon existing drainage patterns would be *less than significant*.

Erosion and Siltation

Construction of the collection substations, gen-tie lines, and connecting transmission lines would involve soil-disturbing activities such as grading for substation pads and leveling and excavation for tower pads. Construction of these infrastructure elements would be subject to the same NPDES requirements for preparation and implementation of SWPPPs as discussed above for the solar and battery storage facilities. The BMPs would be the same or similar to those described above. Notable additional practices would include minimizing disturbance areas and revegetation of disturbed areas upon completion of work in a given area. Temporary facilities such as

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staging areas, pulling sites, and temporary access roads would be sited at specified distances from water bodies and aquatic habitat. A full list of applicable measures, as required, would be included in construction plans and specifications for the infrastructure projects. Implementation of regulatory requirements for erosion and sedimentation control during construction would ensure that potential erosion and sedimentation impacts associated with the gen-tie line would be *less than significant.*

Stormwater Runoff and Flooding

The infrastructure elements would result in very limited areas of new impervious surfaces. These features would consist primarily of concrete foundations for substation structures, and small concrete footings for gen-tie and transmission monopoles, which would be distributed over a large area within the Plan Area. The volume of additional runoff from these impervious surfaces would be insubstantial and would be readily absorbed into the ground adjacent to these features. The potential for these infrastructure elements to increase flood hazards is not substantial and any potential drainage and flooding impacts associated with implementation of the VCIP Infrastructure Plan would be *less than significant*.

Stormwater Drainage Capacity and Potential Polluted Runoff

As discussed above, the VCIP infrastructure elements would result in limited new impervious surface area at the dispersed substation and monopole sites and would not result in increased runoff or flooding potential. There are no existing stormwater drainage systems in the Plan Area, and none are needed for the VCIP infrastructure. Operation of the substations, gen-tie lines, and transmission lines would involve periodic inspection, maintenance, and repair activities that involve travel to the substation and tower sites by maintenance vehicles, which could leak minor amounts of oil or lubricants. The potential for the very small amounts of these pollutants to become entrained in stormwater runoff and be conveyed to downstream water bodies would be insubstantial. In addition, the infrastructure projects would be subject to the pollution control measures contained in the SWPPPs required for each project, which would address the potential for discharge of construction-related pollutants. Potential impacts of VCIP infrastructure projects related to stormwater drainage systems or polluted runoff would be *less than significant*.

Impede or Redirect Flood Flows

As shown in Figure 4.10-1, Substation 5 would be located within the 100-year floodplain associated with Arroyo Pasajero. The structural elements of the substation would need to be installed on raised pads above flood elevation, resulting in insubstantial displacement of flood flows. Similarly, locating some transmission and gen-tie towers within the 100-year and 500-year floodplains may be unavoidable. However, displacement at many small sites dispersed over a large area would have an insubstantial effect on flood flows. Impacts of the VCIP infrastructure projects related to the potential to impede or redirect flood flows would be *less than significant*.

Overall Impacts of VCIP Implementation

Implementation of the VCIP Energy Resource and Infrastructure Plans would not substantially alter the drainage pattern of the Plan Area; add substantial impervious surfaces; result in, or substantially increase the rate or amount of, substantial erosion or siltation on or off the project sites; contribute runoff which would exceed the capacity of stormwater systems or result in polluted runoff; or impede or redirect flood flows. Therefore, any potential impacts regarding these hydrology and water quality issues would be *less than significant*.

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As discussed in Chapter *1. Introduction*, several potential agencies could serve as lead agencies for approval of various elements of the VCIP. For projects subject to Fresno County's approval, the County's drainage and flood control requirements would ensure that drainage and flooding impacts would be substantially reduced or avoided. For VCIP solar and energy storage projects that may not be subject to the County's approval, Mitigation Measure HYD-1 is identified below to ensure that drainage and flood control measures are applied to all VCIP energy resource projects.

Mitigation Measure HYD-1: Complete Hydrology Study

A construction-level hydrology study shall be prepared for each VCIP project prior to grading and construction. The study shall be prepared by a qualified civil engineer who shall determine stormwater volumes and potential flood depths at the site and make recommendations for control of site drainage and avoidance or mitigation of potential flooding impacts. These may include recommendations for construction of detention basins to capture any overland stormwater flows to prevent stormwater runoff from leaving the project site, and raising project elements above calculated flood elevations. The recommendations of the hydrology study shall be incorporated into the project construction plans.

Significance After Mitigation: Less-than-significant impact.

Impact HYD-4. Release of Pollutants due to Flooding, Tsunami, Seiches

Implementation of the VCIP Energy Resource and Infrastructure Plans would involve little or no risk of release of pollutants due to inundation of the VCIP Plan Area from flood hazard or inundation due to dam failure, tsunami, or seiches. (*Less-than-Significant Impact*)

VCIP Energy Resource Plan

Flood Hazard

As discussed under Impact HYD-3 above, portions of the Plan Area lie within mapped flood-zones, so it is expected that a number of solar and energy storage projects would be at least partially subject to flooding during the 100-year event, and to a lesser extent, the 500-year event. The solar and energy storage sites would be largely covered with arrays of solar modules mounted on steel posts such that the modules themselves are positioned above flood elevations. Any inverter/transformer equipment located within flood-prone areas would be installed on raised pads above flood elevations. Similarly, any project substations, O&M buildings, and energy storage facilities that may be unavoidably sited within flood zones would be constructed on raised pads above flood elevations. Therefore, the only project elements that would be in contact with flood waters would be some steel posts supporting solar arrays, and perimeter fencing. These steel elements are inert and include no materials that could be a source of water pollutants. Therefore, within the areas of the Plan Area that are subject to flooding during 100- and 500-year events, there is no risk of release of pollutants due to flooding at the solar and energy storage project sites and the impact would be *less than significant*.

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Inundation Due to Dam Failure

As discussed in Section *4.10.1. Environmental Setting*, most of the Plan Area is located outside the mapped inundation areas for all reservoirs in the region except the northwestern margin of the Plan Area, which may be subject to risk of flooding in the unlikely event of dam failure at Friant Dam or Pine Flat Dam. As such, there is an insubstantial and speculative risk of release of pollutants due to project inundation resulting from dam failure and the impact in this regard would be *less than significant*.

Tsunamis

Tsunamis are large and rapidly moving ocean waves that result from sudden and large-scale fault movement on the ocean floor. Due to the Plan Area's inland location more than 60 miles from the Pacific Ocean and given its elevation at over 170 feet above mean sea level, the VCIP Plan Area is not subject to inundation from tsunamis. As such, there is no risk of release of pollutants due to project inundation from tsunamis and thus there would be *no impact* in this regard.

Seiches

Seiches are seismically induced waves in an enclosed body of water such as a lake or reservoir. Severe seismic shaking can cause impounded water to spill beyond the banks and inundate surrounding lands. There are several reservoirs in the project region located in the Sierra Nevada and Diablo Range. However, as discussed above under "Inundation Due to Dam Failure," the failure of any nearby dams would result in an insubstantial risk of inundation within the northeastern margin of the Plan Area. It is expected that any seiches generated at these reservoirs would not result in dam failure and therefore the inundation zones from such seiches would be smaller than those resulting from dam failure. As such, there is no reasonably foreseeable potential for seiches to result in inundation of the VCIP Plan Area and no risk of release of pollutants due to project inundation from seiches, and thus there would be *no impact* in this regard.

In summary, there is an insubstantial and speculative risk of release of pollutants due to inundation of the VCIP Plan Area from flood hazard or release of pollutants due to inundation due to dam failure, and no risk of release of pollutants from tsunami or seiches; therefore, the impact in this regard is *less than significant*.

VCIP Infrastructure Plan

Flood Hazard

As shown in Figure 4.10-1, Substation 5 would be located within the 100-year floodplain associated with Arroyo Pasajero. The structural elements of the substation would be raised above flood elevation which would avoid contact with flood flows. The other four VCIP collection substations would be located outside of flood-prone areas. In addition, some gen-tie towers and transmission towers would be likely to be unavoidably sited in flood-prone areas and thus the poles would be in contact with flood waters during the 100-year or 500-year events. However, these towers, designed to withstand such flood events, would consist of concrete footings and steel poles which are inert and include no materials that could be a source of water pollutants. Therefore, within the segments of the gen-tie and transmission lines that would be subject to flooding during 100- year or 500-year events, there is an insubstantial risk of release of pollutants due to flooding and the impact would be *less than significant*.

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Inundation Due to Dam Failure

As discussed in Section *4.10.1. Environmental Setting*, most of the Plan Area is located outside the mapped inundation areas for all reservoirs in the region, except a small area on the eastern margin of the Plan Area that may be subject to risk of flooding in the unlikely event of dam failure at Friant Dam or Pine Flat Dam. However, none of the collection substations are located within the potential inundation zones. Short segments of gen-tie line and connecting transmission line may be located in the inundation zone. However, the steel poles and concrete footings for these towers are inert and include no materials that could be a source of water pollutants. Therefore, within the segments of the gen-tie line and transmission line that are subject to inundation due to dam failure, there is an insubstantial risk of release of pollutants due to flooding and the impact in this regard would be *less than significant*.

Tsunamis

As discussed above, the Plan Area is not subject to inundation from tsunamis. As such, there is no risk of release of pollutants due to inundation from tsunamis and there would be *no impact* in this regard.

Seiches

As discussed above, the Plan Area is not subject to inundation due to seiches. As such, there is no risk of release of pollutants due to inundation from seiches and there would be *no impact* in this regard.

In summary, there is insubstantial or no risk of release of pollutants due to inundation of the VCIP infrastructure elements from flood hazard, inundation due to dam failure, tsunamis, or seiches; therefore, the impact in this regard is *less than significant*.

Overall Impacts of VCIP Implementation

As discussed above, the implementation of the VCIP Energy Resource and Infrastructure Plans would involve little or no risk of release of pollutants due to inundation from flood hazard, inundation due to dam failure, tsunamis, or seiches, and therefore the overall impact in this regard would be *less than significant*.

Mitigation Measures: No mitigation is required.

Impact HYD-5. Conflict with Water Quality Plan or Sustainable Groundwater Management Plan

Implementation of the VCIP Energy Resource and Infrastructure Plans would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (*No Impact*)

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VCIP Energy Resource and Infrastructure Plans

Water Quality Plan

The VCIP Plan Area is within the San Joaquin River Hydrologic Basin Planning Area, for which the Basin Plan was most recently revised in 2019 (CVRWQCB 2019). The Basin Plan provides for protection of beneficial uses of surface waters including agricultural, industrial, recreational, biological, and groundwater recharge uses. The Plan Area includes drainage courses that emerge from the Diablo Range and all terminate within the western portion of the Plan Area. The Plan Area is not hydrologically connected to any major regional natural water features in the vicinity such as the Kings River, the San Joaquin River, and Fresno Slough.

The VCIP energy and infrastructure projects would not affect existing surface water features (including natural drainages, canals, and ditches), and groundwater recharge would not be affected due to the insubstantial amount of impervious surface created by the energy and infrastructure projects, as discussed under Impact HYD-3 above. The VCIP energy and infrastructure projects would be required to adhere to NPDES stormwater runoff requirements during construction and operation. This includes preparation and implementation of SWPPPs to control stormwater runoff and minimize erosion, siltation, and contamination by hazardous materials during construction, operation, and decommissioning, as required under existing laws and regulations. The septic systems for the VCIP solar and energy storage facilities would be designed, constructed and operated in compliance with the LAMP for OWTSs and the Fresno County septic design standards, which would prevent groundwater impacts from wastewater disposal. The VCIP energy and infrastructure projects would not include any other waste discharges that could conflict with the Basin Plan.

Sustainable Groundwater Management Plan

As provided in *Section 4.10.2* (Sustainable Groundwater Management Act), the GSP identifies the proposed VCIP as a potential agricultural land repurposing project intended to promote sustainable groundwater management of the Subbasin. The GSP provides that implementing the VCIP and the District's Strategic Plan would "enhance the long-term sustainability of groundwater resources by addressing both water use reduction and regional economic transition, ensuring groundwater sustainability, and fostering environmental and community resilience." These complementary management actions are "intended to promote reduced groundwater demand while supporting the local economy through clean energy development" (DWR 2025a). Thus, as the VCIP would be implemented pursuant to the GSP to promote groundwater sustainability in the Subbasin, it would not conflict with a groundwater sustainability plan.

As discussed in detail under Impact HYD-2 above, the Plan Area is entirely located within the Westside Subbasin, for which the District is the designated GSA, with Fresno County serving as the GSA for portions of the Subbasin outside the District's boundaries. DWR designated the Subbasin as critically overdrafted basin. The 622,215-acre Subbasin area includes the District's entire 614,700-acre service area. As required by SGMA, the District prepared the Subbasin GSP, which its Board of Directors approved on January 8, 2020 (DWR 2020, 2025a). The GSP determined that the estimated sustainable yield for the historical period (1989-2015) across the Subbasin is 305,000 acre-feet per year (AFY) (DWR 2025a). The GSA has prepared a groundwater allocation framework to manage demand by equally distributing total annual pumping from the Subbasin based on overlying land acreage. The groundwater allocation framework includes a "transition period" from 2022 to 2030, with an initial uniform annual allocation of 1.3 AF per acre, which is reduced each year by 0.1 AF per acre, starting in 2024, until 2030 when the permanent annual allocation of 0.6 AF per acre will take effect. The groundwater will be distributed based on per-acre land ownership for all qualifying lands. For purposes of this PEIR, the groundwater supply available to VCIP development is assumed to be the long-term allocation of 0.6 AF per acre per year.

As discussed under Impact HYD-2, the VCIP energy and infrastructure projects would require an average of 0.15 AF per acre per year during construction and decommissioning, and 0.0042 AF per acre per year for operations, both of which are well below the GSA's long-term groundwater extraction limit of 0.6 AF per acre per year. Implementation of the VCIP Energy Resource and Infrastructure Plans would not conflict with the sustainable groundwater management plan. Instead, the VCIP would be implemented as an agricultural land repurposing program pursuant to the GSP and advance the GSP's goal of establishing sustainable groundwater management of the Subbasin, thereby facilitating implementation of SGMA.

In summary, the VCIP Energy Resource and Infrastructure Plans would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan and thus would have *no impact* in this regard.

Mitigation Measures: No mitigation is required.

4.10.3.2. TRANSMISSION CORRIDORS OUTSIDE VCIP

Transmission corridors for delivery of solar generation from VCIP projects to urban electricity markets in northern and southern California have been identified at a conceptual level in this PEIR to allow a general discussion of environmental impacts associated with transmission line development in these corridors for informational purposes. These transmission delivery corridors extend far beyond the District's boundaries and are not part of the proposed VCIP. Planning and approval of these outside transmission lines are under the jurisdiction of the state and federal energy regulatory agencies, public utilities, and cities and counties traversed by the transmission corridors The following discussion provides an overview of potential impacts of the outside transmission lines with respect to hydrology and water quality.

Hydrology, Drainage and Flooding

The delivery transmission lines extending outside the Plan Area to regional load centers would have a total corridor length of approximately 348 miles and would pass through 10 counties and numerous watersheds, hydrologic basins, and groundwater basins (see Figure 2.4-1). The northern transmission corridor would extend from the valley floor to the lower foothills of the Diablo Range which it would follow for most of its length before entering the valley again in Alameda County. The western transmission corridor would commence on the valley floor and then traverse the Coast Ranges and pass through two small valleys on the way to Moss Landing. The southern transmission corridor would extend south along the valley floor before traversing the Tehachapi Mountains and the Antelope Valley to its terminus near Acton. These outside transmission corridors would cross over numerous small drainage courses, artificial canals, and one river – the San Benito River. The transmission lines would readily span these water features without direct impacts to the drainage courses, and temporary construction facilities such as conductor pulling sites and staging areas would be placed well outside the banks of the water bodies. Given the small footprints of the transmission towers, the minimal terrain alteration involved

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in their construction would not alter existing drainage patterns and any potential impacts related to drainage would be *less than significant*.

Many of the affected drainages are prone to overbank flooding during the 100- and/or 500-year events. In most cases, these flood zones are narrow enough to be spanned by the transmission lines. In areas of broader flood zones, such as those in parts of Kern County and the Antelope Valley, the transmission tower footings would be constructed to extend above flood elevations. Overall, very few transmission towers would be located directly within flood zones, and given the very narrow profiles of the towers, the potential for these towers to impede or redirect flood flows would be insubstantial, and any potential impacts related to flooding would be *less than significant*.

Water Quality

Construction of the outside transmission lines has the potential for erosion of exposed soils and spills of hazardous materials that could have an adverse impact on surface water quality. However, each transmission project would be required to prepare and implement a SWPPP that would specify measures to prevent and control erosion and discharges of hazardous materials. Therefore, any potential impacts related to erosion or additional sources of polluted runoff during construction would be *less than significant*. During operations, the transmission lines would have little or no reasonably foreseeable effect on water quality since the steel poles and concrete footings for the towers are inert and include no materials that could be a source of water pollutants, and any potential impacts would be *less than significant*.

The outside transmission lines would not require permanent staff, so there would be no need for septic systems for wastewater disposal. Therefore, the transmission projects would have no potential impact with respect to water quality standards and waste discharge requirements, and thus would not conflict with water quality plans.

Groundwater

The outside transmission line projects would require water during construction for dust suppression. As noted in Table 2.6-1, the outside transmission projects would disturb approximately 4,295 acres at the tower sites, the conductor pulling sites, and the construction staging areas. At a demand rate of 0.15 AF per acre, the total water supply required for 549 miles of transmission line would be approximately 644 AF. This is equivalent to the annual irrigation requirements for about 248 acres of land in agricultural production. For illustration, this volume of water use is well under the long-term extraction limit of 0.6 AF per acre per year for the District's private landowners. It would represent a one-time use (not annual) dispersed over many miles and numerous groundwater basins. It is anticipated that the dust suppression water would be purchased from private well owners or municipal utilities at various locations along the transmission corridors and hauled by tanker truck to the construction sites. The water sources would be dispersed over hundreds of miles and the volume of water obtained at any given location or within any groundwater basin would be insubstantial. During operation of the transmission lines, it is anticipated that no water would be required. Overall, the outside transmission lines would not have an appreciable effect in terms of groundwater depletion. Given the very narrow profile of the widely dispersed transmission towers, the added impervious surface area would be insubstantial, and as a result the transmission lines would not interfere with groundwater recharge. In summary, the outside transmission projects would not substantially deplete groundwater supplies, substantially interfere with groundwater recharge, or impede sustainable groundwater management of the relevant basins. Thus, any potential impacts related to groundwater would be *less than significant*.

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Inundation and Release of Pollutants

Regarding inundation due to dam failure, the outside transmission lines could be subject to inundation due to failure of small dams in the western foothills such as the dams at the Little Panoche Reservoir, the Los Banos Creek Reservoir, and others. However, the risk of failure of either of these dams is very low and is not reasonably foreseeable. In the unlikely event of a dam failure, the mapped inundation zones show that any resulting flooding would likely be relatively shallow and would have little to no impact on the outside transmission lines. The outside transmission lines would not be subject to inundation due to failure of major dams in the Sierra Nevada, such as the Friant, Pine Flat, Terminus, and Lake Isabella dams. There is no reasonably foreseeable risk of inundation from tsunamis or seiches. Moreover, the few tower structures that may be subject to potential inundation are composed of concrete and stainless steel, both of which are inert and contain minimal hazardous materials As such, there is an insubstantial and speculative risk of release of pollutants due to inundation at tower sites resulting from dam failure.

Summary

The potential hydrology and water quality impacts resulting from construction and operation of the outside transmission lines would be avoided through strategic placement of towers and temporary facilities or would be reduced to less-than-significant levels through compliance with existing laws and regulations. Therefore, the potential hydrology and water quality impacts associated with outside transmission lines would be *less than significant*.

4.10.3.3. CUMULATIVE IMPACTS

Water Quality Standards and Waste Discharge Requirements

Cumulative projects mainly include large solar and energy storage projects that would include septic systems for wastewater disposal. (Note: 68 of the cumulative projects listed in Table 4.0-2 consist of solar and energy storage projects which comprise over 98 percent of the total by acreage.[3]) Cumulative projects located within the City of Lemoore would be served by the City's wastewater collection and treatment facilities, which would be subject to WDRs issued by the Regional Board. For cumulative projects with septic systems, those systems would be designed consistent with the Fresno County Plumbing Code, the Fresno County Improvement Standards, and the design criteria of the Fresno County LAMP as approved by the SWRCB (Fresno County 2017b), as well as the corresponding requirements of Kings County for projects in that county. Adherence to these requirements would ensure that the soils in the planned leach field areas would be capable of adequately accommodating the wastewater effluent generated by the solar and energy storage facilities. The septic systems of cumulative projects would be subject to the approval of the Fresno County Public Works and Planning Department (and the Kings County Environmental Health Services Division, as applicable), which would ensure compliance with all applicable standards in order to avoid impacts to groundwater quality. With implementation of the applicable septic system requirements for all affected projects, the cumulative impact

[3] Table 4.0-2 includes a total of 72 cumulative projects; however, four of these projects comprise solar/BESS projects within the VCIP DFAs. Since the plan level impacts of the DFAs, including these projects, are addressed in the main impact analysis sections of this PEIR, they are not duplicated in the cumulative analyses.

would be *less than significant,* and the contribution of VCIP implementation *would not be cumulatively considerable*.

Groundwater Supplies

Each cumulative project, including the projects constructed under the proposed VCIP, would require water during construction, operation, and decommissioning. The demand for water at each site would be highest during construction for purposes of dust control and soil conditioning. Based on review of available environmental documents for foreseeable solar and energy storage projects in the Subbasin, construction water for the solar and energy storage projects would generally be obtained from local groundwater sources within the Subbasin, but surface water would be available from the District in some years. Although the source of construction water for approved and pending non-energy projects has not been publicly disclosed, it is assumed that groundwater would be the source of construction water for these projects and would be available during all water year types for the reasons described above in Appendix F. The overall use of groundwater for construction of all approved and pending cumulative projects at a cumulative rate of 0.158 AFY/acre would be consistent with the Subbasin's long-term sustainable yield of 0.6 AFY/acre and therefore would advance the GSP's goals.

Operational water supplies for each solar project would mainly be used for panel washing. Operational water demands for VCIP solar and energy storage projects are estimated to be approximately 0.004 AFY per acre. It is anticipated that some cumulative projects, such as solar and energy storage projects on District-owned land that are subject to non-irrigation covenants, would receive M&I CVP contract water supplies from the District as provided under Article 19 of the District's Rules and Regulations. Projects on private land would be served by a combination of surface water and groundwater. However, since the specific mix of groundwater and surface water supply for each project cannot be predicted, it is conservatively assumed that all operational water supplies for energy projects on private lands would be obtained from groundwater. Based on the 64,000 acres of private lands in the VCIP DFAs, the total groundwater demand for project operations would be 256 AFY. These operational water demands would be well below the 39,000 AFY allocation (at 0.6 AFY per acre) for those 64,000 acres of privately owned land and therefore would be consistent with the estimated Subbasin's sustainable yield. Thus, if the cumulative projects on private lands, including the private VCIP projects, would rely solely on groundwater for operational needs, the collective water demands would be substantially below the GSA's long-term groundwater allocation of 0.6 AFY per acre and would therefore promote sustainable groundwater management. In addition, since most (i.e., 98%) of the cumulative projects consist of solar and energy storage projects that would retain 90 percent or more of their site areas in permeable vegetated cover, the projects would not interfere with groundwater recharge, individually or collectively.[4] In summary, the cumulative projects would not deplete groundwater supplies, interfere with groundwater recharge, or conflict with or obstruct implementation of the GSP. Therefore, the cumulative impact related to groundwater supplies would be *less than significant*, and the contribution of VCIP implementation *would not be cumulatively considerable*.

Note: As discussed in Section *4.17. Utilities and Service Systems*, several cumulative projects are outside the Westside Subbasin in the City of Lemoore which is a member of the South Fork Kings Groundwater Agency are

[4] Solar projects/BESS projects are typically uniform in basic design, with 90 percent vegetated cover, nine percent driveways, and less than one percent impervious pads. See Section *2.5.1.1.2.* under "Impervious Surfaces and Revegetation."

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in Tulare Lake Subbasin. These projects are subject to the Sustainability Plan of the South Fork GSA and their water demands would not combine with water demands of cumulative projects within the Westside Subbasin, including VCIP projects, to result in a substantial cumulative effect (DWR 2022).

Stormwater Drainage

The VCIP Plan Area has similar natural conditions to the other cumulative projects within and outside the Plan Area, such as relatively flat topography, semi-arid climate, and relative lack of natural drainage courses on-site or nearby. The cumulative solar and energy storage projects would all maintain over 90 percent of their sites in permeable soil with vegetated cover. The relatively small amount of rainfall received at each site (e.g., approximately 6 to 8 inches per year within the Plan Area and adjacent areas) would tend to percolate into the ground and would not tend to leave the site or result in off-site drainage or water quality impacts. Even under major storm conditions, any off-site runoff would likely be captured by one of the many landowner irrigation ditches or agricultural swales in the area. Likewise, where cumulative projects are located in proximity to each other, there is virtually no potential for runoff from several sites to combine to result in downstream drainage or flooding impacts. Therefore, the potential cumulative stormwater drainage impacts would be *less than significant*, and the contribution of VCIP implementation *would not be cumulatively considerable*.

Water Quality

During construction and decommissioning of each cumulative project, including the VCIP projects, potential erosion of exposed soils and spills of hazardous materials that could have an adverse impact on surface water quality may occur. However, each cumulative project would be required to prepare and implement a SWPPP that would specify measures to prevent and control erosion and discharges of hazardous materials. These control measures would reduce the potential water quality impacts at each cumulative site to less-than-significant levels. During project operations, each VCIP solar and energy storage project would require preparation and implementation of a HMBP which would ensure safe handling of hazardous materials at each site and would provide for effective response and cleanup in the event of an accidental release of hazardous materials. The natural and built conditions at each project site would virtually eliminate the potential for stormwater runoff to leave the site. Therefore, the potential for polluted surface water to be mobilized and leave each site is limited and the potential for polluted surface water from several sites to create substantial additional sources of polluted runoff is insubstantial. Therefore, the cumulative impacts to water quality would be *less than significant*, and the contribution of VCIP implementation *would not be cumulatively considerable*.

Flooding

Portions of the VCIP Plan Area are subject to flooding during the 100- and 500-year storm events. As is the case with the VCIP projects, most of the cumulative projects are outside the mapped flood zones, while some of the planned solar and energy storage projects would be partially subject to flooding during the 100-year event. However, projects subject to flooding would be required by Fresno County Ordinance Code (and the Kings County Code of Ordinances, as applicable) to incorporate drainage control and flood protection measures to address any potential impacts within the project sites and adjacent properties. This requirement is reinforced by Mitigation Measure HYD-1 which covers all VCIP projects, including projects that may not be subject to Fresno County permit requirements. Implementation of these measures would limit any project's potential to impede or redirect flood flows or release pollutants due to flooding. In summary, any cumulative flooding impacts would be reduced to less-than-significant levels with drainage and flood measures incorporated into the design and implementation of affected projects, as required by existing laws and

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regulations. Therefore, the *cumulative impact related to flooding would be less than significant*, and the *contribution of VCIP implementation would not be cumulatively considerable*.

Inundation Due to Dam Failure

The VCIP Plan Area includes an area along its northeastern boundary that would be subject to inundation during failure of the Friant Dam on the San Joaquin River or failure of the Pine Flat Dam on the Kings River. The area adjacent to the southeast VCIP boundary in Kings County would also be subject to inundation resulting from failure of the Pine Flat Dam. This area includes the City of Lemoore and adjacent lands that include cumulative projects with a total area of approximately 2,000 acres. However, the risk of failure of either of these dams is considered very low, and the areas within the cumulative study area that are subject to potential inundation are located at the extreme western edges of the mapped inundation zones where resulting flooding would likely be shallow (Fresno County 2023b). Each cumulative project would require preparation and implementation of a HMBP which would ensure safe handling of hazardous materials at each site and would provide for effective response and cleanup in the event of an accidental release of hazardous materials. As such, there is an insubstantial risk of release of pollutants due to inundation at some cumulative project sites resulting from dam failure. Therefore, the cumulative impact in this regard would be *less than significant,* and the contribution from VCIP implementation *would not be considerable*.

Conflicts with a Water Quality Control Plan

As discussed under Impact HYD-5, the VCIP Plan Area is in an enclosed basin where incoming drainage courses terminate within the Plan Area and there are no drainage outflows from the Plan Area. As such, there is little or no potential that water quality impacts from VCIP projects would combine with projects outside the Plan Area to produce a cumulative effect. As shown in Figure 4.10-1, some cumulative projects are in the Plan Area but are not part of the proposed VCIP. Only one of these projects (the operational PG&E Cantua Solar Project) is near a drainage course (Cantua Creek). As discussed under Impact HYD-5, all VCIP energy and infrastructure projects would be sited and designed to avoid existing drainage courses, so VCIP implementation would not result in direct impacts to any drainage courses. In addition, implementation of BMPs as identified in SWPPPs for each cumulative project, including all VCIP projects, would address the potential for stormwater runoff to carry sediments and pollutants from the project sites to any water bodies in the Plan Area. Implementation of HMBPs during operation of all cumulative projects, including VCIP projects, would address the effects of any accidental releases of hazardous materials. Compliance with existing laws and regulations would reduce potential cumulative impacts regarding Water Quality Control Plans to *less-than-significant levels,* and the contribution of VCIP implementation *would not be cumulatively considerable*.

Conflicts with a Sustainable Groundwater Management Plan

Construction, operation, and decommissioning of VCIP energy and infrastructure projects would involve water demands that are substantially lower than the groundwater allocations established in the Westside Subbasin GSP, as discussed under Impact HYD-5. Implementation of the VCIP energy resource and infrastructure plans would not conflict with or obstruct implementation of a sustainable groundwater management plan. All but three of the cumulative projects within the Westside Subbasin listed in Table 4.0-2 consist of solar and energy storage projects that would have similarly low groundwater demands. The three non-energy projects all consist of pistachio processing plants, including the Kamm Avenue, Stamoules, and Turk Station plants. The Kamm Avenue plant will use only CVP contract water provided by the District. The Stamoules and Turk Station plants will use groundwater pursuant to agreements with the District that ensure groundwater pumping complies with the allocations and groundwater sustainability goals established in the Westside Subbasin GSP
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(Fresno Co, 2021a, 2023e). As mentioned above, several cumulative projects are located in the City of Lemoore which is located in the Tulare Lake Subbasin and is a member of the South Fork Kings GSA. These projects are subject to the Sustainability Plan of the South Fork GSA and their water demands would not combine with water demands of cumulative projects within the Westside Subbasin, including VCIP projects, to result in a substantial cumulative effect. Therefore, all cumulative projects, including the VCIP energy and infrastructure projects, would comply with SGMA, and there would be no cumulative conflicts with the GSP. Compliance with existing laws and regulations would reduce potential cumulative impacts regarding sustainable groundwater management plans to *less-than-significant levels,* and the contribution of VCIP implementation *would not be cumulatively considerable*.

Summary

The potential hydrology and water quality impacts resulting from cumulative development, including VCIP development, would be avoided or reduced to less-than-significant levels through compliance with existing laws and regulations as incorporated into the design and construction of the affected projects. Therefore, any cumulative hydrology and water quality impacts would be *less than significant*, and the contribution from VCIP implementation *would not be cumulatively considerable*.

Transmission Corridors Outside the VCIP

The potential transmission projects outside the Plan Area would not result in significant drainage, flooding or water quality impacts, would not result in any significant impacts to groundwater resources, would not result in potential release of pollutants due to inundation from dam failure, tsunami, or seiches, and would not conflict with or impede implementation of a water quality control plan or groundwater sustainability plan. Therefore, the hydrology and water quality impacts of the outside transmission lines would be less than significant, and the contribution to any cumulative impact would not be cumulatively considerable. It is beyond the scope of this PEIR to consider the cumulative hydrology and water quality impacts related to development in the 10 affected counties. It is reasonable to assume, however, that all cumulative projects would be constructed in accordance with all applicable state laws and regulations, local building codes, and other applicable standards that would require protection from flooding, avoidance of water quality impacts, and sustainable groundwater management. Accordingly, any cumulative hydrology and water quality impacts would be *less than significant*, and the contribution from the outside transmission projects *would not be cumulatively considerable*.

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