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Initial Study & Mitigated Negative Declaration CEQA Report

Buena Vista Water Storage District

Corn Camp Groundwater Recharge Pond Project

Prepared for:

Buena Vista Water Storage District

June 2020

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Corn Camp Groundwater Recharge Pond Project

Prepared for:

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June 2020

Project No. 1904697 Task 4

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Abbreviations and Acronyms

AF	acre-feet
BMP	best management practices
Caltrans	California Department of Transportation
C.A.R.B.	California Air Resource Boards
C.A.A.Q.S.	California Ambient Air Quality Standards
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	Californi Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
C.O.	carbon monoxide
County	Kern County
CVP	Central Valley Project
dBA	A-weighted decibels
District	Buena Vista Water Storage District
D.O.C.	Department of Conservation
DOF	Department of Finance
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FKC	Friant Kern Canal
FMMP	Farmland Mapping and Monitoring Program
GEI	GEI Consultants, Inc.
GHG	greenhouse gas
HCP	Habitat Conservation Plans
IRWM	Integrated Regional Water Management
IS/MND	Initial Study/Mitigated Negative Declaration
Leq	equivalent continuous sound level in decibels
LRA	Local Responsible Area
MA	Masters of Art
MCL	Maximum Contaminant Level
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plans
N.O.$_2$.	nitrogen dioxide
NO_X	Oxides of nitrogen
NOI	Notice of Intent
N.P.D.E.S.	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

O_3	Ozone
OHP	Office of Historic Preservation
PG&E	Pacific Gas and Electric
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PRC	Public Resources Code
proposed project/project	Corn Camp Groundwater Recharge Pond Project
Reclamation	Bureau of Reclamation
RPA	registered professional archaeologist
S.J.V.A.B	San Joaquin Valley Air Basin
S.J.V.A.P.C.D.	San Joaquin Valley Air Pollution Control District
$S.O._2$.	sulfur dioxide
S.M.A.R.A.	Surface Mining and Reclamation Act of 1975
SPAL	Small Project Analysis Level
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Program
SWRCB	State Water Resource Control Board
U.S.F.W.S.	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

The Buena Vista Water Storage District (District) has prepared this Initial Study/proposed Mitigated Negative Declaration (IS/MND) in compliance with the California Environmental Quality Act (CEQA) and Guidelines to address the potentially significant environmental impacts of the proposed Corn Camp Groundwater Recharge Pond Project (proposed project or project) in Kern County, California (County). The District is the lead agency under CEQA.

After the required public review of this document is complete, the District's Board of Directors will consider all IS/MND comments received, the entirety of the administrative record for the project, whether to adopt the proposed MND and a Mitigation Monitoring and Reporting Program and approve the proposed project.

1.1 Summary of Findings

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the proposed project. Based on the issues evaluated in that chapter, it was determined that:

The proposed project would result in no impacts on the following issue areas:

- Hazards and Hazardous Waste
- Land Use and Planning
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Wildfire

The proposed project would result in less-than-significant impacts on the following issue areas:

- Aesthetics
- Agriculture and Forestry Resources
- Energy
- Greenhouse Gas Emissions
- Mineral Resources
- Noise
- Utilities and Service System

The proposed project would result in less-than-significant impacts *after* mitigation implementation on the following issue areas:

- Air Quality
- Biological Resources

- Cultural Resources
- Geology and Soils
- Hydrology and Water Quality

1.2 Other Key Public Agencies Relying on this IS/MND

CEQA requires that state and local governmental agencies consider the environmental effects of projects over which they have discretionary authority before taking action on those projects (Public Resources Code [PRC] Section 21000 et seq.). CEQA also requires that each lead agency avoid or mitigate to less-than-significant levels, wherever feasible, the significant environmental effects of projects it approves or implements. There are no other key public agencies relying on this IS/MND.

1.3 Document Organization

This entire document is divided into the following three key sections required under CEQA:

Proposed Mitigated Negative Declaration. The MND, which precedes the presentation of the IS analysis in this document, briefly summarizes the proposed project, summarizes the environmental conclusions, and identifies mitigation measures that would be implemented in conjunction with the proposed project.

Initial Study. The IS constitutes the remaining portion of this document and provides an introduction, project description, environmental checklist, references cited, report preparers, and distribution list, as briefly summarized below:

> **Chapter 1, Introduction.** This chapter describes the purpose of the IS/MND, summarizes findings, and describes the organization of this IS/MND.
>
> **Chapter 2, Project Description.** This chapter describes the project location and background, project need and objectives, project characteristics, construction activities, project operations, and discretionary actions and approvals that may be required.
>
> **Chapter 3, Environmental Checklist.** This chapter presents an analysis of environmental issues identified in the CEQA environmental checklist and determines whether project implementation would result in a beneficial impact, no impact, less-than-significant impact, less-than-significant impact with mitigation incorporated, potentially significant impact, or significant impact on the physical environment in each topic area. Should any impacts be determined to be potentially significant or significant, an EIR would be required. For this proposed project, however, mitigation measures have been incorporated as needed to reduce all potentially significant and significant impacts to a less-than-significant level.
>
> **Chapter 4, References.** This chapter lists the references used to prepare this IS/MND.

Chapter 5, Report Preparers. This chapter identifies report preparers who contributed to the preparation of this document.

2.0 Project Description

2.1 Project Background

The Buena Vista Water Storage District (District) service area includes approximately 50,000 acres in two distinct areas – Buttonwillow Service Area and Maples Service Area – in the lower Kern River watershed of western Kern County. All water used in the District is delivered to agricultural and environmental users. The District also delivers water through the District to the Kern Natural Wildlife Refuge, approximately 7 miles north of the District's northern boundary. Approximately 35,000 acres of the District's service area are annually farmed, the primary crops being pistachios, cotton, alfalfa, and grains. The District receives 150,000 acre-feet per year (AFY) of surface water from the Kern River and 12,000 AFY from the State Water Project (SWP). The District a delivery system with more than 125 miles of earthen canals. The District currently has access to five turnouts from the California Aqueduct that can provide its system with approximately 850 cubic feet per second (cfs) of gravity inflow capacity directly into the distribution system. Annual surface water supply exceeds the District's average annual crop demands; although the supply is highly irregular and often requires growers to recover recharged groundwater by pumping groundwater from privately-owned wells.

2.2 Proposed Project

The District proposes to construct a recharge pond, pump station, and water tank on an approximately 81-acre parcel at the southwest corner of the Corn Camp Road and Sullivan Road intersection (**Figure 1-1**). The project site is approximately 20 miles west of Bakersfield and immediately west of Buttonwillow, in Section 16, Range 23E, and Township 29S of the Lokern U.S. Geological Survey (USGS) 7.5-minute quadrangle (**Figure 1-2**). The District would enter into a 25-year lease (with an option to extend) with Chevron, the property owner. The approximately 50-acre recharge pond would expose sand for percolation at 8 feet deep. Approximately 650,000 cubic yards of soil would be excavated and used to construct berms to contain the pond. Maximum recharge estimates, based on a full-year operation schedule, would average 24,500 AFY. Water from existing District sources (e.g., Kern River, SWP) would be delivered to the recharge pond via the existing Corn Camp Canal and/or 7th Standard Pipeline. In the future, the District may apply to the U.S. Bureau of Reclamation for authorization to bank Central Valley Project water at the site.

The pump station and water tank would be situated on the southwestern corner of the parcel in an existing laydown/storage area. The pump station would have a footprint of approximately 0.13 acre. The pump station would connect to the existing 7th Standard Pipeline and house 4 pumps (150 horsepower each) and ground-mounted transformer connected to a nearby electrical pole. The District would construct a 10-foot-diamater, 30-foot tall water storage tank adjacent to the pump station. For security purposes, the pump station and water storage tank would be illuminated with pole-mounted lights and surrounded by a chain-link fence. Construction activities are anticipated to be completed in a 3–5 -month period in 2020. Construction of the groundwater recharge pond

may occur concurrently with the pump station and water storage tank. The District would use several excavators, loaders, dozers, forklifts, welding and service trucks, scrapers, a bell truck with box scraper, and a water truck for dust control. Storage and staging of equipment and material would be located entirely within the 81-acre parcel.

2.3 Project Objectives

The project has two primary objectives:

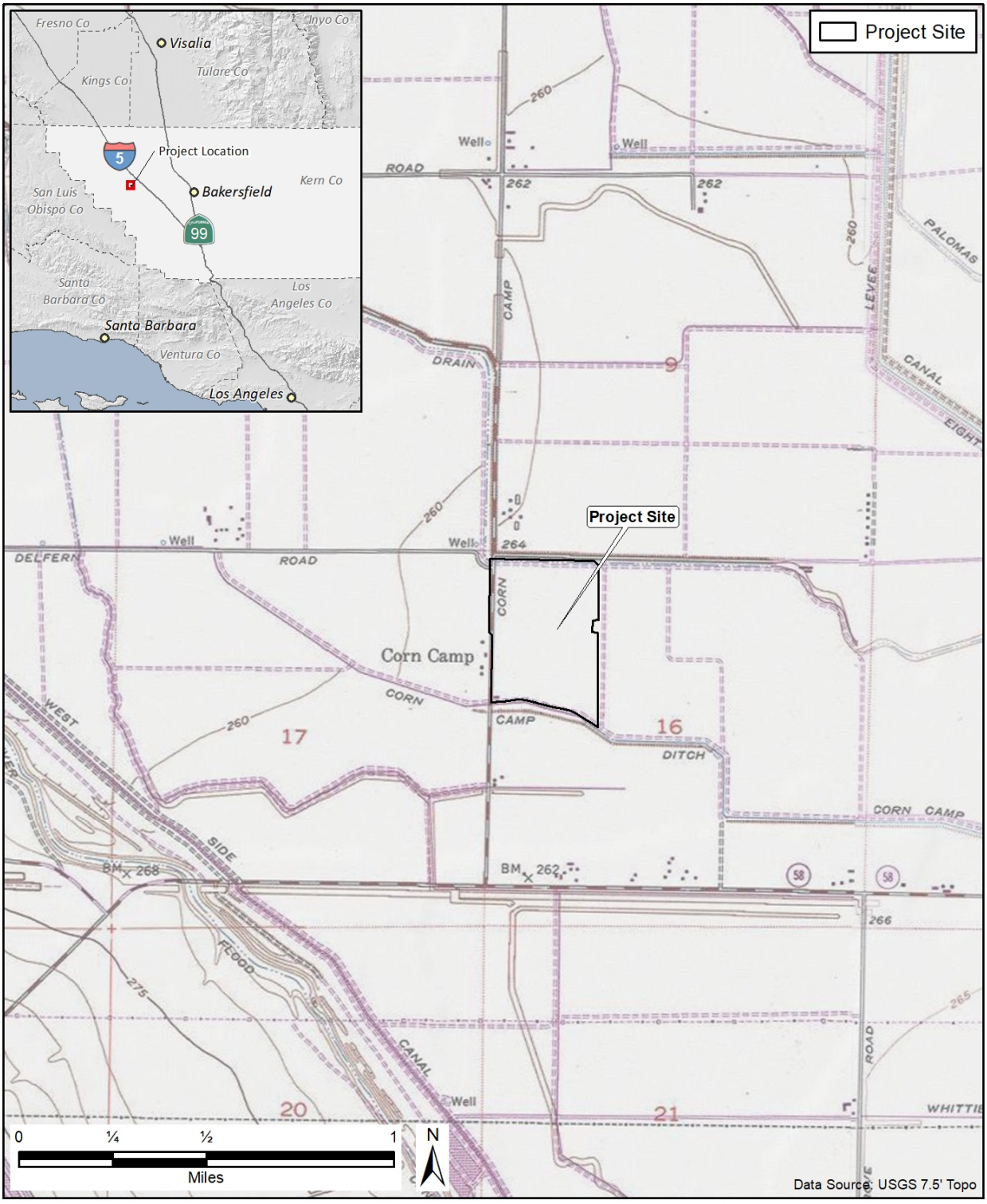
- Increase conjunctive management on the west side of Kern County by expanding the area's ability to accept surface water for groundwater recharge during periods when surface water is available; and

- Reduce agricultural demand by replacing approximately 68 acres of irrigated farmland with spreading grounds.

The project would benefit groundwater users by improving groundwater management and quality. Water supply and energy savings would result from a general increase in groundwater elevations in the project area. The project would be operated to provide a long-term benefit to the basin and aid in regional compliance with the Sustainable Groundwater Management Act.

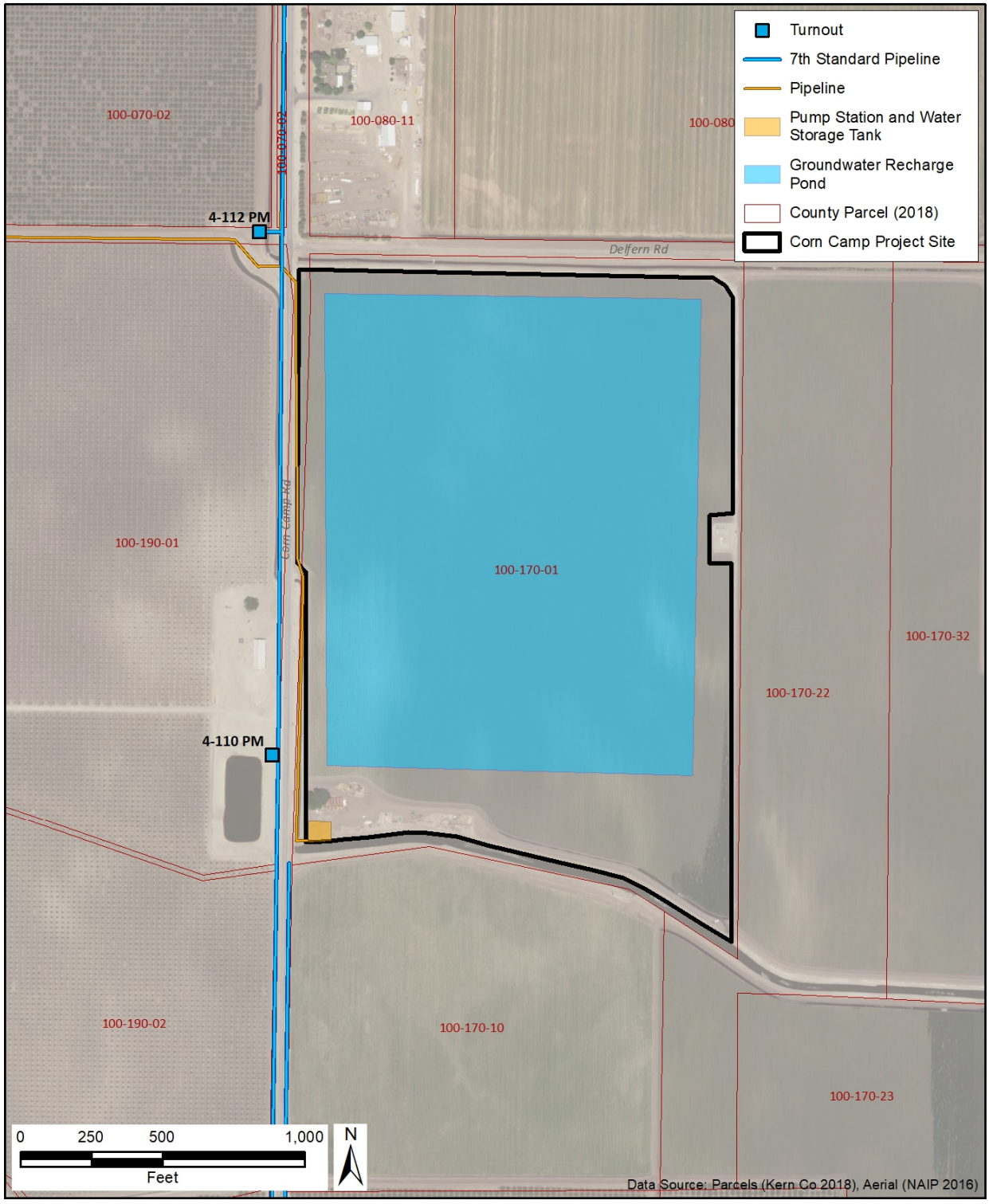
The project site has an established history of irrigated crop production. Retiring these lands from irrigated agriculture will enable water to be delivered to the area based on availability of water for recharge, rather than in response to the pattern of crop demand. Therefore, the timing of the deliveries will differ in a way that benefits the Buttonwillow Sub-basin. The District anticipates that retiring this irrigated land from production and converting it to recharge facilities will reduce irrigation demand by approximately 250 AFY and reduce nitrates now conveyed to groundwater from deep percolation of irrigation applications by eliminating the application of nitrogen and other fertilizers.

Figure 2-1: Project Location.



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Figure 2-2: Corn Camp Groundwater Recharge Pond Project Area.



2.4 Regulatory Requirements, Permits, and Approval

As the lead agency under CEQA, the District has the principal responsibility for approving and carrying out the proposed project and for ensuring that CEQA requirements and all other applicable regulations are met. Other agencies that may have permitting approval or review authority over portions of the proposed project are listed below:

- **Central Valley Regional Water Quality Control Board (C.V.R.W.Q.C.B.), Construction Activities General Permit.** Required for any project that disturbs more than 1 acre of soil. The proposed project would disturb approximately 50 acres of soil in Kern County. Under this permit, the County would need to develop a Stormwater Pollution Prevention Plan (SWPPP).
- **San Joaquin Valley Air Pollution Control Board (S.J.V.A.P.C.D.), Dust Control Plan.** Required for any project that disturbs more than 1 acre of soil.

3.0 Environmental Checklist

Project Information

#1. Project title:	Corn Camp Groundwater Recharge Pond Project
#2. Lead agency name and address:	Buena Vista Water Storage District
#3. Contact person and phone number:	Mr. Tim Ashlock (661) 979-6182
#4. Project location:	525 North Main Street, Buttonwillow, CA 93206
#5. Project sponsor's name and address:	Same as lead agency
#6. General plan designation:	Exclusive Agriculture
#7. Zoning:	Exclusive Agriculture
#8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)	The proposed project consists of constructing a groundwater recharge pond, pump station, and water tank.
#9. Surrounding land uses and setting: Briefly describe the project's surroundings:	The project site is located in the unincorporated area of Kern County, in an area dominated by agricultural production. The unincorporated community of Buttonwillow is located approximately 3 miles east of the project site.
#10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)	Central Valley Regional Water Quality Control Board and San Joaquin Valley Air Pollution Control District
#11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code (PRC) Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?	Yes. Consultation is described in more detail in Chapters 3.5, Cultural Resources, and 3.17, Tribal Cultural Resources.

Note: Conducting consultation early in the California Environmental Quality Act (CEQA) process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (*See* PRC Section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. **Please also note** that PRC Section 21082.3(c) contains provisions specific to confidentiality.

Environmental Factors Potentially Affected

No environmental resources were found to have "potentially significant impacts". The environmental factors listed as "Yes" in **Table 3-1** would be potentially affected by this project, involving at least one impact that has "Less-than-Significant Impacts with Mitigation Incorporated" as indicated by the checklist on the following pages.

Table 3-1. Environmental Resources with Potentially Significant Impacts Prior to Mitigation.[1]

Environmental Resources	Yes or No?
Aesthetics	No
Agriculture and Forestry Resources	No
Air Quality	**Yes**
Biological Resources	**Yes**
Cultural Resources	**Yes**
Energy	No
Geology/Soils	**Yes**
Greenhouse Gas Emissions	No
Hazards and Hazardous Materials	No
Hydrology/Water Quality	**Yes**
Land Use/Planning	No
Mineral Resources	No
Noise	No
Population/Housing	No
Public Services	No
Recreation	No
Transportation	No
Tribal Cultural Resources	No
Utilities/Service Systems	No
Wildfire	No
Mandatory Findings of Significance	**Yes**

[1] Impacts to all resources are reduced to less-than-significant with the incorporation of mitigation measures.

Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:	Yes or No?
I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	No
I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	Yes
I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	No
I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	No
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier Environmental Impact Report (EIR) or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	No

Signature	6-3-2020 Date
Tim Ashlock Print Name	Engineer/Manager Title
Buena Vista Water Storage District Agency	

3.1 Aesthetics

#1. AESTHETICS. Except as provided in PRC Section 21099, **would the project**:

#1 -a. Have a substantial adverse effect on a scenic vista?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#1 -b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#1 -c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#1 -d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

3.1.1 Environmental Setting

The project site is located west of Interstate 5 (I-5), in Kern County. The project site is zoned as letter "A" (signifying, exclusive agriculture) (Kern County 1988). The project area is flat and is comprised of paved and unpaved roads, open water canals, and various agricultural crops (*see* **Appendix A** for photos of the project area). There are no designated scenic vistas within the vicinity of the project sites (California Department of Transportation [Caltrans] 2019).

3.1.2 Discussion

#1 -a, and b. Have a substantial adverse effect on a scenic vista? Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

There are no significant view-sheds, scenic vistas, or scenic highways located in the vicinity of the proposed project (Caltrans 2019). There would be **no impact**.

#1 -c and d. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The proposed project includes constructing a groundwater recharge pond, pump station, and water storage tank. During construction, several vehicles and equipment would be onsite which is not substantially different that normal agricultural operations. Following the completion of construction activities all construction-related equipment would be removed. The groundwater recharge pond would not be visible from the street. Although the pump station and 30-foot tall water storage tank would change the existing visual character within the immediate vicinity, these features are entirely compatible with its agricultural surroundings. The proposed project would include new lighting at the pump station; however, the lighting would be on a timer and focused downward so as not to create substantial glare. Therefore, this impact would be **less-than-significant.**

3.2 Agriculture and Forestry Resources

#2. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project**:

#2 -a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#2 -b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#2 -c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#2 -d. Result in the loss of forest land or conversion of forest land to non-forest use?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#2 -e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

3.2.1 Environmental Setting

The project sites are designated as agriculture (Kern County 1988). The project site is designated as prime farmland, as delineated by the Farmland Mapping and Monitoring Program (FMMP) (Department of Conservation [D.O.C.] 2018). The project site is currently under a Williamson Act contract (Kern County 2010).

3.2.2 Discussion

#2 -a and b. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? Conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project site is situated on agricultural land designated as prime farmland (D.O.C. 2018). The project site is also situated on agricultural land under a Williamson Act contract (Kern County 2010). The District would construct and operate a groundwater recharge pond, pump station, and water storage tank on the parcel, which would not be farmed during project implementation. The purpose of the proposed project is to improve water supply for agricultural water users, which is a benefit to agriculture. Moreover, the District would enter into a 25-year lease (with an option to extend) with Chevron; expiration of the lease would allow Chevron to put the parcel back into active agricultural production. During project implementation, the parcel would continue to be mapped as prime farmland and the Williamson Act contract would continue to be valid. Finally, constructing and operating a groundwater recharge pond, pump station, and water storage tank are compatible uses as defined by the Williamson Act. Therefore, this impact would be **less-than-significant**.

#2 -c and d. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? Result in the loss of forest land or conversion of forest land to non-forest use?

The project site is not zoned as forest land, timberland, or timberland zoned as timberland production, therefore, no loss or conversion of forest land to non-forest land would be necessary. There would be **no impact**.

#2 -e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Kern County, like the rest of California, is subject to hydrological changes as a result of climate change, including short- and long-term droughts. The groundwater recharge pond and water storage tank would be supplied with water from existing District sources (e.g., Kern River, SWP) but only during "wet" years when surface water supplies are adequate. The District anticipates years in which water would not be delivered to the groundwater recharge pond during the 25-year lease because of inadequate water supplies; however, these instances would not result in a conversion of farmland to non-agricultural uses. The project site is not zoned as forest land. Therefore, this impact would be **less-than-significant**.

3.3 Air Quality

#3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations. **Would the project**:

#3 -a. Conflict with or obstruct implementation of the applicable air quality plan?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.
#3 -b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.
#3 -c. Expose sensitive receptors to substantial pollutant concentrations?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#3 -d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

3.3.1 Environmental Setting

The proposed project is located in the San Joaquin Valley Air Basin (S.J.V.A.B.) within Kern County. The San Joaquin Valley Air Pollution Control District (S.J.V.A.P.C.D.) is responsible for regulating air quality in Kern County.

The Federal Clean Air Act and California Clean Air Act required the U.S. Environmental Protection Agency (EPA) and California Air Resource Boards (C.A.R.B.) to establish health-based air quality standards at the federal and state levels. National Ambient Air Quality Standards (N.A.A.Q.S.) and California Ambient Air Quality Standards (C.A.A.Q.S.) were established for the following seven criteria pollutants: carbon monoxide (C.O.), ozone (O_3), sulfur dioxide ($S.O._{2.}$), nitrogen dioxide ($N.O._{2.}$), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead. Areas of the state are designated as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards according to the Federal Clean Air Act and California Clean Air Act.

An "attainment" designation for an area signifies that pollutant concentrations did not violate the N.A.A.Q.S. or C.A.A.Q.S. for that pollutant in that area. A "nonattainment" designation indicates

that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as identified in the criteria. A "maintenance" designation indicated that the area previously categorized as nonattainment is currently categorized as attainment for the applicable pollutant; though the area must demonstrate continued attainment for a specific number of years before it can be re-designated as an attainment area. An "unclassified" designation signifies that data does not support either an attainment or a nonattainment status. The EPA established N.A.A.Q.S. in 1971 for six air pollution constituents. States have the option to add other pollutants, to require more stringent compliance, or to include different exposure periods. C.A.A.Q.S. and N.A.A.Q.S. are listed in **Table 3-2**.

Table 3-2. Federal and California Ambient Air Quality Standards and Attainment Status.

Pollutant	Averaging Time	California Standards Concentration	Federal Primary Standards Concentration
Ozone (O_3)	8-hour	0.070 parts per million. (137 micrograms per cubic meter).	0.070 parts per million (137 micrograms per cubic meter.) (*See* Note #1.)
	1-hour	0.09 parts per million. (180 micrograms per cubic meter).	(None; *see* Note #2.)
Respirable Particulate Matter (PM_{10})	24-hour	50 micrograms per cubic meter.	150 micrograms per cubic meter.
	Annual Arithmetic Mean	20 micrograms per cubic meter.	(None.)
Fine Particulate Matter ($PM_{2.5}$)	24-hour	(None.)	35 micrograms per cubic meter.
	Annual Average	12 micrograms per cubic meters.	12 micrograms per cubic meter.
Carbon Monoxide	8-hour	9 parts per million. (10 milligrams per cubic meter.)	9 parts per million. (10 milligrams per cubic meter).
	1-hour	20 parts per million. (23 milligrams per cubic meter).	35 parts per million. (40 micrograms per cubic meter).
Nitrogen Dioxide	Annual Average	0.03 parts per million. (57 micrograms per cubic meters.)	0.053 parts per million. (100 micrograms per cubic meters.)
	1-hour	0.18 parts per million. (339 micrograms per cubic meters.)	0.100 parts per million. (188 micrograms per cubic meters.)
Lead	30-day Average	1.5 micrograms per cubic meters.	(None.)
	Rolling 3-Month Average	(None.)	0.15 micrograms per cubic meter.
	Quarterly Average	(None.)	1.5 micrograms per cubic meter.
Sulfur Dioxide	24-hour	0.04 parts per million.	0.14 parts per million (for certain areas)

		(105 micrograms per cubic meter.)	
	3-hour	(None.)	(None.)
	1-hour	0.25 parts per million. (655 micrograms per cubic meter.)	0.075 parts per million. (196 micrograms per cubic meter.)
Sulfates	24-hour	25 micrograms per cubic meter.	No Federal Standard.
Hydrogen Sulfide	1-hour	0.03 parts per million. (42 micrograms per cubic meter.)	No Federal Standard.
Vinyl Chloride	24-hour	0.01 parts per million. (26 micrograms per cubic meter.)	No Federal Standard.

Notes:
#1. On October 1, 2015, the national 8-hour ozone (O_3) primary and secondary standards were lowered from 0.075 to 0.070 ppm.
#2. 1-Hour ozone standard revoked effective June 15, 2005, although some areas have continuing obligations under that standard.
Source: C.A.R.B. 2019, EPA 2016

Under the N.A.A.Q.S., the County is designated as nonattainment for 8-hour ozone, and $PM_{2.5}$, and attainment/unclassified for PM_{10}, C.O., $N.O._{2.}$, $S.O._{2.}$, lead, and sulfates (C.A.R.B. 2018). Under C.A.A.Q.S., the County is designated unclassified for all criteria pollutants (C.A.R.B. 2018).

The area's air quality monitoring network provides information on ambient concentrations of air pollutants in the S.J.V.A.B. Monitoring stations in Kern County are operated by S.J.V.A.P.C.D.; air quality data was obtained from the Bakersfield-California Avenue station. **Table 3-3** compares a 5-year summary of the highest annual criteria air pollutant emissions collected at this station with applicable C.A.A.Q.S., which are more stringent than the corresponding N.A.A.Q.S. Due to the regional nature of these pollutants, O_3, $PM_{2.5}$, and PM_{10} are expected to be fairly representative of the project site.

As indicated in Table 3-3, O_3, $PM_{2.5}$, and PM_{10} standards have been exceeded over the past 5 years.

Table 3-3. Ambient Air Quality Monitoring Data Measured at the Bakersfield-California Avenue Monitoring Station.

Pollutant Standards, 1-Hour Ozone	2014	2015	2016	2017	2018
Maximum 1-hour concentration (ppm)	0.102*	0.104*	0.092*	0.122*	0.107*
Days Exceeding[a] C.A.A.Q.S. 1-hour (>0.09 parts per million)	3	6	0	11	8
Pollutant Standards, 8-Hour Ozone	**2014**	**2015**	**2016**	**2017**	**2018**
National maximum 8-hour concentration (parts per million).	0.092*	0.096*	0.085*	0.104*	0.098*
State max. 8-hour concentration (parts per million).	0.093*	0.097*	0.086*	0.104*	0.098*
Days Exceeding[a] N.A.A.Q.S. 8-hour. (>0.075 parts per million.) (*See* note #1.)	20	28	30	47	34
Days Exceeding[a] C.A.A.Q.S. 8-hour. (>0.070 parts per million.) (*See* note #1.)	39	54	63	87	64
Pollutant Standards, Particulate Matter (PM10)	**2014**	**2015**	**2016**	**2017**	**2018**
National max. 24-hour concentration (micrograms per cubic meter).	430.1*	104.7	90.9	138.0	136.1
State max. 24-hour concentration (micrograms per cubic meter).	419.5*	103.6*	92.2*	143.6*	142.0*
State max. 3-year average concentration (micrograms per cubic meter).	41	44	44	44	43
State annual average concentration (micrograms per cubic meter).	N/A	44.1	40.9	42.6	N/A
Days Exceeding[a] N.A.A.Q.S. 24-hour (>150 micrograms per cubic meter).	N/A	0	0	0	0
Days Exceeding[a] C.A.A.Q.S. 24-hour (>50 micrograms per cubic meter).	N/A	121.4	121.4	98.7	N/A
Pollutant Standards, Particulate Matter (PM2.5)	**2014**	**2015**	**2016**	**2017**	**2018**
National max. 24-hour concentration (micrograms per cubic meter).	101.9*	107.9*	66.4*	101.8*	98.5*
State max. 24-hour concentration (micrograms per cubic meter).	101.9	111.9	66.4	101.8	98.5
State annual average concentration (micrograms per cubic meter).	18.6*	16.6*	15.9*	15.9*	15.6*
Days Exceeding[a] N.A.A.Q.S. 24-hour (>35 micrograms per cubic meter).	39.3	32.3	25.5	30.2	40.3

Notes:

* = Values in excess of applicable standard.

N/A =There was insufficient (or no) data available to determine the value.

2018 is the latest year of data available as of preparation of this Chapter.

#1. An exceedance is not necessarily a violation. Sources: C.A.R.B. 2020.

3.3.2 Discussion

#3 -a and b. Conflict with or obstruct implementation of the applicable air quality plan? Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?

The proposed project would generate criteria pollutants from the use of diesel-powered vehicles and equipment, and earthmoving activities. Construction of the proposed project would require approximately 20 truck trips to drop off all required material and equipment to the project site. The excavated soil from the groundwater recharge pond would remain onsite for use to construct the berms. An additional 760 vehicle trips, would be required for workers commuting to the project site during the 3–5 month construction period. A total of 780 truck/vehicle trips would be required to construct the project.

The District assumes that 1 vehicle trip per week (1,300 total trips) would be required for operation of the groundwater recharge pond, pump station, and water storage tank during the 25-year lease.

To streamline the process of assessing significance of criteria pollutant emissions from common construction projects, S.J.V.A.P.C.D has developed a screening tool, the Small Project Analysis Level (SPAL) to assist in determining if constructing a project in the County would exceed the construction significance threshold for criteria pollutants. The tool uses project type and size, and S.J.V.A.P.C.D. pre-quantified emissions to determine a size below which it is reasonable to conclude that a project would not exceed applicable thresholds of significance for criteria pollutants (S.J.V.A.P.C.D., 2017). Construction of a project that does not exceed the screening level are considered to have a less-than-significant impact on air quality (**Table 3-4**). The proposed project would result in a *total* of 2,080 trips (construction and operation) and is significantly lower than the SPAL threshold, which is measured by *trips per day*.

Table 3-4. Small Project Analysis Level by Vehicle Trips.

Land Use Category	Project Size
Residential Housing	1,453 trips per day
Commercial	1,673 trips per day
Office	1,628 trips per day
Institutional	1,707 trips per day
Industrial	1,506 trips per day

Source: S.J.A.P.C.D. 2017

However, since the project would disturb more than 1 acre, the District would need to acquire the following permits: N.P.D.E.S. construction general permit (Order 2009-0009 DWQ as amended by Order 2012-0006-DWQ) and Dust Control Plan. The project would comply with all BMPs outlined in the above-mentioned permits. The project would also comply with all S.J.V.A.P.C.D. rules and regulations. S.J.V.A.P.C.D. Regulation VIII implements measures to reduce ambient concentrations of PM_{10} and oxides of nitrogen ($NO_{x)}$.

Therefore, this impact would be **potentially significant**. The following mitigation measures have been identified to address this impact:

Mitigation Measure AQ-1: District Regulation VIII Fugitive PM_{10} Prohibitions Best Management Practices

All projects are subject to S.J.V.A.P.C.D. rules and regulations in effect at the time of construction. Control of fugitive dust is required by S.J.V.A.P.C.D. Regulation VIII. The District shall implement or require its contractor to implement all of the following measures as identified by S.J.V.A.P.C.D.:

- Apply water to unpaved surfaces and areas
- Use non-toxic chemical or organic dust suppressants on unpaved roads and traffic areas
- Limit or reduce vehicle speed on unpaved roads and traffic areas
- Maintain areas in a stabilized condition by restricting vehicle access
- Install wind barriers
- During high winds, cease outdoor activities that disturb the soil
- Keep bulk materials sufficiently wet when handling
- Store and hand material in a three-sided structure
- When storing bulk material, apply water to the surface or cover the stage pile with a tarp
- Don't overload haul trucks. Overlanded trucks are likely to spill bulk materials
- Cover haul trucks with a tarp or other suitable cover. Or, wet the top of the load enough to limit visible dust emissions
- Clean the interior of cargo compartments on emptied haul trucks prior to leaving the site
- Prevent track-out by installing a track-out control device
- Clean up track-out at least once a day. If along a busy road or highway, clean up track-out immediately
- Monitor dust-generating actives and implement appropriate measures for maximum dust control

With preparation and implementation of Mitigation Measure AQ-1, N.P.D.E.S. construction general permit and Dust Control Prevention Plan, this impact would be **less-than-significant after mitigation**

#3 -c. Expose sensitive receptors to substantial pollutant concentrations?

Some members of the population are especially sensitive to emissions of air pollutants and should be given special consideration during the evaluation of the project air quality impacts. These people include children, senior citizens, and persons with pre-existing respiratory or cardiovascular illnesses, and athletes and other who engage in frequent exercise, especially outdoors. Sensitive receptors include schools, residences, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The project site is located in a predominately agricultural area. The closest sensitive receptors would be the residences, located approximately 1 mile south of the project site.

During construction, most of the particulate matter (PM), emissions are released in the form of fugitive dust during ground disturbance activities. PM emissions are also generated in the form of equipment exhaust and re-entrained road dust from vehicle travel. Construction impacts from PM emissions would be temporary. Operation of the groundwater recharge pond would suppress PM emissions. Given the short-term emissions, distance from sensitive receptors, and incorporation of Mitigation Measure AQ-1, impacts would be **less-than-significant**.

#3 -d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Human response to odors is subjective, and sensitivity to odor varies from person to person. Typically, odors are considered an annoyance rather than a health hazard; however, a person's response to odor can range from psychological (e.g., irrigation, anger, anxiety) to physiological (e.g., circulatory and respiration reaction, nausea, headaches). During construction, the project would generate odor from the use of diesel fuels, though this would be short-term and nearly a mile to the nearest sensitive receptors. During operations, the project would not produce odors. Potential odor effects would be **less-than-significant**.

3.4 Biological Resources

#4. BIOLOGICAL RESOURCES. Would the project:

#4 -a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.
#4 -b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#4 -c. Have a substantial adverse effect on State or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Have Potentially Significant Impact? No..	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#4 -d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#4 -e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#4 -f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? Yes or No.	Have No Impact? **Yes.**

3.4.1 Environmental Setting

The following analysis of potential for biological resources to be impacted by the proposed project is based on information provided in the Biological Technical Report provided as **Appendix B.**

Background Review

Before conducting biological field surveys, GEI Consultants, Inc. (GEI) obtained official species lists from the United States Fish and Wildlife Service (U.S.F.W.S.), California Department of Fish

and Wildlife (CDFW) California Natural Diversity Database (CNDDB), and the California Native Plant Society's Inventory of Rare and Endangered Plants (CNPS) for information on range and occurrences of these species in and near the biological survey area, which includes the project site and (U.S.F.W.S. 2019a, U.S.F.W.S. 2019b, CDFW 2018, and CNPS 2018).

Field surveys of the locations where construction would occur were conducted by a GEI biologist Anne King on May 22, 2019, to assess the potential for special-status species to occur on or adjacent to the project site and be affected by construction of the groundwater recharge pond.

Existing Conditions

The project site is limited to existing agricultural land; the site is not currently cultivated but is regularly maintained (i.e., disked). No native vegetation assemblages are present on or adjacent to the project site. Irrigation canals border the site on the north and south sides and a portion of the west side. Beyond the canals, barren dirt road shoulders and paved roadways occur to the north and west. The surrounding agricultural lands are actively cultivated in pistachio orchard and cotton. Agricultural equipment yards are adjacent to the southwest and northwest portions of the site; these yards are primarily barren, with small areas of ornamental trees and shrubs.

Agricultural habitats adjacent to the project site support a low diversity of wildlife species that are adapted to these intensely managed and relatively disturbed environments. Because the project site and adjacent areas are primarily comprised of paved roadways and actively cultivated lands, only the most mobile species (e.g., birds and mammals with large home ranges) that typically use highly altered habitats are likely to occur on the project site. Although the irrigation canals convey water in some months, they are often dry and are regularly maintained, supporting very little vegetation and providing poor-quality habitat for wildlife.

3.4.2 Discussion

#4 -a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?

Results of the CNDDB and CNPS USGS 9-quadrangle searches, and the USFWS species list yielded occurrences of 20 special-status plants species and 28 special-status wildlife species. None of the 20 special-status plant species are expected to occur on or near the project site. Of the 28 special-status wildlife species, 23 special-status wildlife species have no potential to occur on or adjacent to the project site and five special-status species, including burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), San Joaquin kit fox (*Vulpes macrotis mutica*), and western mastiff bat (*Eumops perotis californicus*), have a low potential to occur on or adjacent to the project site.

Special-Status Plants

Based on the review of existing documentation and habitat evaluations made during field surveys, habitat for special-status plant species is absent from the project site, and none of the plants were determined to have potential to occur on or adjacent to the project site. Therefore, there would be **no impact** on special-status plants.

Special-Status Birds

Three special-status bird species – burrowing owl, Swainson's hawk, and loggerhead shrike – have potential to nest and forage in the project vicinity. These species are known to occur in the project vicinity, but the project site and adjacent areas currently provide poor-quality habitat for them. Depending on adjacent crops that are present during project implementation, these species' foraging behavior could be disturbed by project activities. However, because extensive areas of similar or higher-quality foraging habitat are present in the vicinity, such disturbance would be a minor impact. If occupied burrowing owl burrows become established onsite, they could be directly destroyed, and burrowing owls could be injured or killed by project activities. Potential for project activities to result in Swainson's hawk nest failure or abandonment of occupied burrowing owl burrows is very low, because the quality of potential nesting habitat is poor, the project area is subject to regular disturbance from agricultural activities, and project activities are anticipated to cause somewhat similar disturbance levels. However, in the unlikely event an active Swainson's hawk nest or occupied burrowing owl burrow is present very close to the project site, project activities could result nest/burrow abandonment, reduced care of eggs or young, or premature fledging. Depending on the species and number of individuals that are affected, burrow destruction or nest failure could be considered a substantial adverse effect. Therefore, this impact would be **potentially significant**. The following mitigation measures have been identified to address this impact:

> **Mitigation Measure BIO-1a: Conduct Focused Surveys for Burrowing Owls and Avoid Loss of Occupied Burrows**.
>
> To minimize potential effects of project construction on burrowing owl, the District will ensure that the following measures are implemented, consistent with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).
>
> - A take avoidance survey will be conducted within 14 days before project activities begin.
>
> - If any occupied burrows are observed, protective buffers will be established and implemented. A qualified biologist will monitor the occupied burrows during project activities to confirm effectiveness of the buffers. The size of the buffer will depend on type and intensity of project disturbance, presence of visual buffers, and other variables that could affect susceptibility of the owls to disturbance.

- If it is not feasible to implement a buffer of adequate size and it is determined, in consultation with CDFW, that passive exclusion of owls from the project site is an appropriate means of minimizing impacts, an exclusion and relocation plan will be developed and implemented in coordination with CDFW. However, passive exclusion cannot be conducted during the breeding season (February 1–August 31), unless a qualified biologist verifies through noninvasive means that either (1) the birds have not begun egg laying or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Mitigation Measure BIO-1b: Conduct Focused Surveys for Nesting Swainson's Hawk, other Loggerhead Shrike, and Common Raptors and Implement Buffers Around Active Nests.

To minimize potential effects of project construction on nesting Swainson's hawk, other special-status birds, and common raptors, the District will ensure that the following measures are implemented:

- A qualified biologist will conduct surveys of potential Swainson's hawk nesting trees within 0.25 mile of the project site. To the extent practicable, depending on timing of project initiation, surveys will be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). At a minimum, a survey will be conducted within 14 days before beginning project activities that occur during the nesting season (April–August).

- A qualified biologist will conduct surveys of suitable nesting habitat that would be directly disturbed by project activities and suitable nesting habitat for loggerhead shrike and common raptors, if present within 500 feet of project activities. Surveys will be conducted within 14 days before project activities begin near suitable nesting habitat during the nesting season (February-August).

- If any active nests are observed, protective buffers will be established and implemented until the nests are no longer active. A qualified biologist will monitor the nest during project activities to confirm effectiveness of the buffer. The size of the buffer will depend on type and intensity of project disturbance, presence of visual buffers, and other variables that could affect susceptibility of the nest to disturbance.

Implementing Mitigation Measures BIO-1a and BIO-1b would reduce the potential impact related to special-status birds to a less-than-significant level because their habitat would be avoided. Therefore, the proposed project would have a **less-than-significant impact with mitigation**.

San Joaquin Kit Fox

Based on current habitat conditions and observations made during the field surveys, potential for San Joaquin kit fox to den on or adjacent to the project site is very low. However, if a den becomes established or transient individuals are present during project implementation, the den could be abandoned, or kit foxes could be injured or killed if they come in contact with project equipment or become trapped in pipes or trenches. Therefore, this impact would be **potentially significant**. The following mitigation measures have been identified to address this impact:

> **Mitigation Measure BIO-2: Conduct Pre-Construction Surveys and Implement Measures during Construction to Minimize Potential Impacts on San Joaquin Kit Fox.**
>
> To minimize potential effects of project construction on San Joaquin kit fix, the District will ensure that the following measures are implemented, consistent with *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011).
>
> - No more than 30 days before project activities begin, a qualified biologist will conduct a pre-construction survey to determine the potential for listed species to occur in the project area. If potential dens for San Joaquin kit fox are found, exclusion zones will be established and maintained.
>
> - The District will designate a project representative as the contact for any employee or construction contractor who finds a dead, injured, or entrapped San Joaquin kit fox. If a San Joaquin kit fox is found dead, injured, or entrapped on a project site, the District contact will be notified immediately and will immediately relay the report to USFWS.
>
> - All sightings of San Joaquin kit fox in the project area will be reported to USFWS within 3 working days, and a record of the sightings will be submitted to the CNDDB.

Implementing Mitigation Measures BIO-2 would reduce the potential impact related to San Joaquin kit fox to a less-than-significant level because their habitat would be avoided. Therefore, the proposed project would have a **less-than-significant impact with mitigation**.

Special-Status Bats

Western mastiff bat has low potential to occur on or adjacent to the project site. Because potential bat roosting habitat in the project vicinity is limited to poor-quality artificial sites (e.g., agricultural structures), and project disturbance would be similar in intensity to agricultural activities, there would be no impacts to roosting bats. In addition, foraging activities of mastiff bats that may occasionally use the project site would not be disturbed by construction activities. Therefore, there would be **no impact**.

#4 -b and c. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? Have a substantial adverse effect on state- or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The project site does not support any riparian habitat, designated critical habitat, or other sensitive natural community identified in local or regional plans, policies, or regulations. Aquatic habitat near the project site is limited to irrigation canals, which are heavily maintained, generally lack vegetation, and provide very poor habitat. The proposed project would not impact the canals. Therefore, there would be **no impact**.

#4 -d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Although terrestrial wildlife likely travel along the adjacent canals, agricultural lands and roads may provide equally suitable movement opportunities. Project activities would only occur during the day, while most wildlife movement would likely be at night. Moreover, the proposed project would not disturb the canals. The project site is not known or anticipated to serve as a nursery site for any wildlife species. Therefore, implementing the proposed project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites; this impact would be **less-than-significant**.

#4 -e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The 2004 Kern County General Plan, which is currently being updated, includes several policies and implementation measures designed to protect and conserve threatened and endangered species and oak trees (Kern County 2004a). No oak trees are present on the project site, and the project has no potential to conflict with Kern County's General Plans oak retention policy. The Plan requires discretionary projects to consider effects to biological resources and wildlife agency comments during the CEQA process; this is consistent with the CEQA process being implemented by the District for the proposed project. Therefore, implementing the proposed project would not conflict with any local policies or ordinances protecting biological resources and this impact would be **no impact**.

#4 -f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

The project site is not within the area covered by an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan. Therefore, no conflict with an adopted HCP, NCCP, or other approved conservation plan would occur, and there would be **no impact**.

3.5 Cultural Resources

#5. CULTURAL RESOURCES. Would the project:

#5 -a. Cause a substantial adverse change in the significance of a historical resource pursuant to California Code of Regulations (CCR) Section 15064.5?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.
#5 -b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.
#5 -c. Disturb any human remains, including remains interred outside of dedicated cemeteries?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.

3.5.1 Environmental Setting

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance.

Record Search

On October 9, 2019, GEI archaeologist Ben Curry, PhD., conducted an in-person records search of the project area and a surrounding 0.5-mile radius at the Southern San Joaquin Valley Information Center (S.S.J.V.I.C.). The records search included a review of the Lokern Quadrangle of the USGS 7.5-minute series topographic cultural resource base map held at the S.S.J.V.I.C. The S.S.J.V.I.C. resource map review indicates that one previously recorded resource borders the APE (P-15-013726), but that no other known resources are within 0.5 mile of the project area (S.S.J.V.I.C. File Number: 19-407). P-15-013726 is a large irrigation canal named the Main Drain, which is recorded in multiple locations and is either earthen or concrete banked depending on location. The Main Drain is located on the northern border of the project area (GEI 2020).

Native American Consultation and Coordination

A Tribal Sacred Lands search request was filed with the NAHC. The search was completed on November 14, 2019, with the conclusion that no tribal cultural resources are located on or in the vicinity of the proposed project site (NAHC 2019).

On November 22, 2019 the District submitted a notification letter to the Torres Martinez Desert Cahuilla Indians pursuant to Assembly Bill 52; to date, the District has not received a response.

Field Survey

GEI senior archaeologists Jesse Martinez, Registered Professional Archaeologist, conducted a reconnaissance-level pedestrian survey on October 16, 2019. The pedestrian survey provided reconnaissance level coverage of the parcel the project is located on; transects spaced approximately 50 meters apart were walked as well as much more intensive coverage (approximately 1 meter transects) in a 20- by 20-meter area in the northwest portion of the project area. Visibility was good, approximately 90 percent or higher, across the project area. A recently excavated pit, approximately 1.5 by 1.5 meters square and 1 meter in depth, was closely examined in the east-central portion of the project area.

The project area consists of agricultural land and dirt roads. Vegetation at the time of the survey was relatively sparse allowing for good visibility. A single granitic handstone was identified in the northwestern portion of the project. The area where the handstone was identified was intensely examined using transects placed no more than 1 meter apart. No other cultural material was identified during the survey (GEI 2020).

3.5.2 Discussion

a, b) Cause a substantial adverse change in the significance of a historical resource pursuant to in CCR Section 15064.5? Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR Section 15064.5?

Under CEQA, public agencies must consider the effects of their actions on "historical resources." CEQA defines an "historical resource" as any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California Historical Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (California PRC Section 5024.1, 14 CCR Section 4850). The eligibility criteria for listing in the CRHR are similar to those for NRHP listing but focus on importance of the resources to California history and heritage.

A cultural resource may be eligible for listing in the CRHR if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2. is associated with the lives of persons important in our past
3. embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values
4. or has yielded, or may be likely to yield, information important in prehistory or history

In addition to meeting one or more of the above criteria, resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association (OHP 1999).

Impacts would be deemed significant if there is substantial adverse change by means of physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. Per Section 15064.5 (b)(2) of the CEQA Guidelines the significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for the purposes of CEQA.

Main Drain is the only known historical resource near the project vicinity; however, because it is located outside of the agricultural field where the groundwater recharge pond will be constructed, it will not be impacted. Also, a single isolated prehistoric handstone was identified during the reconnaissance-level pedestrian survey; however, the handstone does not meet any of the CRHR eligibility requirements (i.e., the handstone artifact type is relatively common). The artifact also does not represent a unique archaeological resource. Therefore, the impact would be **less-than-significant**.

Though very unlikely, the possibility remains that a resource meeting CRHR significance criteria for a historical resource may be discovered during project-related ground-disturbing activities. If this were to occur, then it would be a **potentially significant impact**. The following mitigation measure has been identified to address this impact:

> **Mitigation Measure CR-1: Address Previously Undiscovered Historic Properties, Archaeological Resources, and Tribal Cultural Resources.**
>
> The District shall implement measures to reduce or avoid impacts on undiscovered historic properties, archaeological resources, and tribal cultural resources. If buried

or previously unidentified historic properties or archaeological resources are discovered during project construction, all work within a 100-foot-radius of the find shall cease. The District shall retain a professional archaeologist meeting the Secretary of the Interior's Professional Standards for Archaeologists to assess the discovery and recommend what, if any, further treatment or investigation is necessary for the find. Interested Native American Tribes will also be contacted. Any necessary treatment/investigation shall be developed in coordination with interested Native American Tribes providing recommendations and with the District and shall be completed before project activities continue in the vicinity of the find.

Implementing Mitigation Measure CR-1 would reduce the potential impact related to discovery of unknown historical and/or archaeological resources to a less-than-significant level because the find would be assessed by an archaeologist and the treatment or investigation would be conducted in accordance with CEQA and its implements guidelines. Therefore, the proposed project would have a **less-than-significant impact with mitigation**.

c) Disturb any human remains, including remains interred outside of dedicated cemeteries?

No human remains have been discovered in the project area and it is not anticipated that human remains, including those interred outside of dedicated cemeteries, would be discovered during ground-disturbance activities with the proposed project. There is no indication from the records searches or pedestrian survey that human remains are present within the project site locations. However, in the event that human remains, including those interred outside of formal cemeteries and including associated items and materials, are discovered during subsurface activities, the human remains, and associated items and materials could be inadvertently damaged. Therefore, a **potentially significant impact** would occur. The following mitigation measure has been identified to address this impact:

Mitigation Measure CR-2: Avoid Potential Effects on Undiscovered Burials.

If human remains are found, Reclamation and the District should be immediately notified. The California Health and Safety Code requires that excavation be halted in the immediate area and that the county coroner be notified to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code, Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, the coroner must contact the Native American Heritage Commission (NAHC) by telephone within 24 hours of making that determination (Health and Safety Code, Section 7050.5[c]).

Once notified by the coroner, the NAHC shall identify the person determined to be the Most Likely Descendant (MLD) of the Native American remains. With permission of the legal landowner(s), the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains

and any associated grave goods. This visit should be conducted within 24 hours of the MLD's notification by the NAHC (Public Resources Code [PRC], Section 5097.98[a]). If a satisfactory agreement for treatment of the remains cannot be reached, any of the parties may request mediation by the NAHC (PRC, Section 5097.94[k]). Should mediation fail, the landowner or the landowner's representative must reinter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (PRC, Section 5097.98[b]).

Implementing Mitigation Measure CR-2 would reduce the potentially significant impact related to discovery of human remains to a less-than-significant level because the find would be assessed by an archaeologist and treated or investigated in accordance with state and federal laws. Therefore, the proposed project would have a **less-than-significant impact with mitigation**.

3.6 Energy

#6. ENERGY. Would the project:

#6 -a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#6 -b. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.6.1 Environmental Setting

Electricity and natural gas are supplied to Kern County by Pacific Gas and Electric (PG&E), Southern California Edison, and Southern California Gas (Kern County 2004a). In 2018, the total electricity consumption for Kern County was approximately 15,942 million kilowatts per hour (California Energy Commission [CEC] 2018).

3.6.2 Discussion

#6 -a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The proposed project would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources. The project would involve the use of diesel-fueled vehicles during constructions, however, use of these vehicles would be temporary and insignificant. Water would be delivered to the site via the existing Corn Camp Canal and 7th Standard Pipeline which would not result in an increase in energy consumption. The proposed project will raise groundwater levels, thus reducing energy use for pumping from groundwater wells in the project area. Operation of the pump station and water storage tank would require electrical energy, but it would not be wasteful, inefficient, or unnecessary. Therefore, impacts would be **less-than-significant**.

#6 -b. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Kern County does not have a local plan for renewable energy or energy efficiency. The proposed project would comply with the state's Climate Commitment to reduce the reliance on non-renewable energy sources by half by 2030 (CEC 2015). There would be **no impact**.

3.7 Geology and Soils

#7. GEOLOGY AND SOILS. Would the project:

#7 -a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
#7 -a. i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#7 -a. ii. Strong seismic ground shaking?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#7 -a. iii. Seismic-related ground failure, including liquefaction?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#7 -a. iv. Landslides?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#7 -b. Result in substantial soil erosion or the loss of topsoil?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

#7. GEOLOGY AND SOILS. Would the project:

#7 -c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#7 -d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated),), creating substantial direct or indirect risks to life or property?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#7 -e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste-water disposal systems where sewers are not available for the disposal of wastewater?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#7 -f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.

3.7.1 Environmental Setting

The northeastern and southeastern corners of the parcel contain Lokern clay, drained soil; the remaining parcel consist of Buttonwillow clay, drained soil (NRCS 2020). The proposed project is located approximately 5 miles northeast of an unnamed quaternary fault (age undifferentiated) in the Elk Hills (California Geological Survey [CGS] 2010a). A quaternary fault is an active fault that has been recognized at the surface and which has evidence of movement in the past 1.6 million years. The project is not located in or near a fault zone, landslide zone, or liquefaction zone (CGS 2020). The project site is located on marine and non-marine sedimentary rock (CGS 2010b).

3.7.2 Discussion

#7 -a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

#7 -a. i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

The proposed project is not located within a fault zone (CGS 2020). The proposed project is located approximately 5 miles northeast of an unnamed quaternary fault (CGS 2010a). Surface fault rupture is most likely to occur on active faults (i.e., faults showing evidence of displacement within

the last 11,700 years). Damage from surface fault rupture is generally limited to a linear zone a few yards wide. Since the proposed project is not located on an active fault line and is at least 1 mile away from a quaternary fault line, impacts would be **less-than-significant**.

#7 -a. ii. Strong seismic ground shaking?

The groundwater recharge pond would not pose a direct risk to people during seismic activity. A seismic event is unlikely to cause the berms (which hold the pond in place) and water storage tank to collapse. If the berms were to fail, the water would not be dispersed into nearby canals and agricultural fields because the pond would be located below existing ground level. If the water storage tank (approximately 0.05 acre-feet) were to fail, the water would be dispersed to the surrounding area, including the adjacent canals and the newly installed groundwater recharge pond. Therefore, there would be no significant impact to people or structures from any seismic-related activity as a result of implementation of the proposed project. This impact would be **less-than-significant**.

#7 -a. iii. Seismic-related ground failure, including liquefaction?

The project site is not located within a known liquefaction zone (CGS 2020). Therefore, there would be **no impact**.

#7 -a. iv. Landsides?

The project site is not located in a landslide zone (CGS 2020). Because the project site is located in a topographically flat area, there is no risk of landslides. Therefore, there would be **no impact**.

#7 -b, c, and d. Result in substantial soil erosion or the loss of topsoil? Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?

Because the excavated soil will be used to construct berms to contain the pond, the proposed project will result in the reuse, but not loss, of topsoil. Operating the pond will increase groundwater in the subbasin and prevent subsidence. The berms will be constructed in such a manner as to prevent landslides and collapse. Soils present at the project site consists of Lokern clay, drained soil and Buttonwillow clay, drained soil, both of which are considered to be expansive soils (NRCS 2020); however, the proposed project would not create a direct or indirect risk to life or property because of the limited size and scope of the project and rural/agricultural nature of the project area.

Because construction activities would disturb an area larger than 1 acre, the District is required to obtain coverage under the N.P.D.E.S. construction general permit, which includes preparation and implementation of a SWPPP. The SWPPP shall describe the construction activities to be

conducted, BMPs that would be implemented to prevent soil erosion and contaminated stormwater discharges into waterways, and inspection and monitoring activities that would be conducted.

With the preparation and implementation of a Dust Control Plan, loss of topsoil would be minimized during construction. Operation of the pond would reduce the potential for loss of topsoil and wind-borne erosion. Therefore, there would be **less-than-significant** impacts.

#7 -e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The project would not require the use of septic tanks or alternative wastewater disposal systems. Temporary portable restrooms would likely be provided for construction workers. Therefore, there would be **no impact**.

#7 -f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The project site is located on marine and non-marine sedimentary rock that consist of alluvium, lake, playa, and terrace deposits, and is from the Pleistocene-Holocene ages (CGS 2010b). Since paleontological resources are found almost exclusively in sedimentary rock, there is a chance of discovering unknown paleontological resources within the project site. Therefore, a **potentially significant impact** would occur. The following mitigation measure has been identified to address this impact:

> **Mitigation Measure GEO-1: Avoid Potential Effects on Paleontological Resources.**
>
> In the event that a paleontological resource is uncovered during project implementation, all ground-disturbing work within 165 feet (50 meters) of the discovery shall be halted. A qualified paleontologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts will occur, no further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified paleontologist shall evaluate the resource and determine whether it is "unique" under CEQA, Appendix G, part VII. The determination and associated plan for protection of the resource shall be provided to the District for review and approval. If the resource is determined not to be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the paleontologist shall consult with the District staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to paleontological resources and shall be required unless there are other equally effective methods. Other methods may be used but must ensure that the fossils are recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of a qualified

paleontologist. All recovered fossils shall be curated at an accredited and permanent scientific institution according to Society of Vertebrate Paleontology standard guidelines; typically, the Natural History Museum of Los Angeles County and University of California, Berkeley accept paleontological collections at no cost to the donor. Work may commence upon completion of treatment, as approved by the District.

Implementing Mitigation Measure GEO-1 would reduce the potential impact related to discovery of unknown paleontological resources to a less-than-significant level because the fossil would be preserved. Therefore, the proposed project would have a **less-than-significant impact with mitigation**.

3.8 Greenhouse Gas Emissions

#8. GREENHOUSE GAS EMISSIONS. Would the project:

#8 -a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#8 -b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes**.

3.8.1 Environmental Setting

Kern County has not adopted a local plan for reducing greenhouse gas (GHG) emissions. The S.J.V.A.P.C.D. has adopted the *Guidance for Valley Land-use Agencies Addressing GHG Emissions Impacts for New Projects under CEQA* (S.J.V.A.P.C.D. 2009). The guidance addresses stationary source projects and development projects.

3.8.2 Discussion

#8 -a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHG emissions would be generated during the construction phase of the proposed project from the use of diesel-powered vehicles.

Project operations, which includes water conveyance and use of the pump station and water storage tank, will not result in GHG emissions. During operations, vehicle usage, and therefore GHG emissions, would be minimal.

Therefore, GHG emissions related to vehicle engine exhaust would be **less-than-significant**.

#8 -b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

California has more than 10 Executive Orders directing state agencies to implement programs to reduce GHG emissions to meet 2030 target of 40 percent below 1990 levels (California, 2018). C.A.R.B. is the primary state agency responsible implementing GHG reduction programs. Kern County does not have an adopted local greenhouse gas reduction plan. The S.J.V.A.P.C.D. provides guidance for addressing GHG emissions from land use development projects. The S.J.V.A.P.C.D. considers development projects to be less than significant if the project achieves 29% GHG emission reductions target by using approved Best Performance Standards (BPS) (S.J.V.A.P.C.D. 2009). BPS includes project design elements and technologies, such as the use of

energy efficient equipment, that reduce GHG emissions. Because the District would incorporate energy efficient equipment and comply with S.J.V.A.P.C.D. guidance on land use development projects, there would be **no impact**.

3.9 Hazards and Hazardous Materials

#9. HAZARDS AND HAZARDOUS MATERIALS. Would the project:

#9 -a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#9 -b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#9 -c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#9 -d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#9 -e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#9 -f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#9 -g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.9.1 Environmental Setting

Queries of the SWRCB Geotracker and California Department of Toxic Substances Control Envirostor hazardous materials sites indicate that the proposed project is not located on a known hazardous materials site (SWRCB 2020; Department of Toxic Substance Control 2020). The project sites are not located in a high severity fire hazard zone (California Department of Forestry and Fire Department [CALFIRE] 2007a and 2007b).

3.9.2 Discussion

#9 -a, b, c, d, f, and g. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The proposed project would be implemented adjacent to active agriculture, farm roads, and canals. The project is located away from population centers; involving hazardous materials; and would rely on electric power rather than liquid fuels. The project would not expose people to increased risks from wildland fire as the project sites are comprised entirely of farmland and are not located within a high severity fire zone. The project would not affect emergency response plans as facilities would not interfere with traffic routes or response vehicle transport. There would be **no impact**.

#9 -e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Kern County has established an Airport Land Use Compatibility Plan which has been incorporated into the General Plan (Kern County 2012). The purpose of the Airport Land Use Compatibility Plan is to establish procedures and criteria by which the County of Kern and affected incorporated cities can address compatibility issues when making planning decisions. The project site is located approximately 8 miles north of the Elk Hills-Buttonwillow Airport. The project site is not within an Airport Influence Area and as such would not need to be reviewed to insure compatibility with the Airport Land Use Compatibility Plan. There would be **no impact**.

3.10 Hydrology and Water Quality

#10. HYDROLOGY AND WATER QUALITY. Would the project:

#10 -a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.
#10 -b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

#10 -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:

#10 -c. i. result in substantial erosion or siltation on- or off-site;	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#10 -c. ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#10 -c. 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	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

#10. HYDROLOGY AND WATER QUALITY. Would the project:

#10 -c. iv. impede or redirect flood flows?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#10 -d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#10 -e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

3.10.1 Environmental Setting

The District lies entirely in Kern County and covers about 78.3 square miles in two distinct service areas: the Buttonwillow Service Area (BSA) and the smaller Maples Service Area (MSA) which lies about 10 miles south of the BSA. The project is sited in the BSA at the corner of Corn Camp Road and Sullivan Road, east of the West Side Canal and the Kern River Flood Channel.

The San Joaquin Valley, forming the southern two-thirds of the Central Valley, is a broad structural trough bordered on the east by the Sierra Nevada Mountains and on the west by the Diablo and the Temblor ranges. The valley extends 220 miles southeastward from the confluence of the San Joaquin and the Sacramento rivers to the Tehachapi and the San Emigdio mountains. The width of the valley ranges from 25 miles in the northern portion to 55 miles in the south (Croft 1972). The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern rivers that flow into the Tulare drainage basin, which includes the beds of the former Tulare, Buena Vista, and Kern lakes.

BVWSD is located near the western edge of the Kern County Groundwater Subbasin about 16 miles west of Bakersfield along the western edge of the southern San Joaquin Valley (DWR 2003). The subbasin is bounded on the north by the Kern County line and the Pleasant Valley, Tulare Lake, and Tule groundwater subbasins, on the east and southeast by the Sierra Nevada foothills and Tehachapi Mountains, and on the west and southwest by the San Emigdio Mountains and the Temblor Range. The Kern River is an important source of water for the District with the BSA located north of the river.

3.10.2 Discussion

#10 -a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Potential impacts to groundwater quality were determined by comparing water quality data near the proposed project to the surface water sources (i.e., California Aqueduct and Kern River). Table 3-5 summarizes groundwater quality observations recorded at District Monitoring Well 7 (DMW 07), which is located near the proposed project. This data shows concentrations of Total Dissolved Solids (TDS) above the Secondary Maximum Contaminant Level (MCL) on one occasion. Arsenic occurs naturally in soils in this area, and concentrations observed at DMW 7 are uniformly at or very close to the Primary MCL.

Table 3-5. Summary of Water Quality Data from DMW 7.

Constituent	Sample Date	MCL	Test Result	Units
Chloride[1]	7/24/2008	250	46	mg/L
	8/9/2012	250	35	mg/L
	7/25/2013	250	37	mg/L
	7/30/2014	250	37	mg/L
	7/8/2015	250	41	mg/L
	9/12/2017	250	40	mg/L
Sodium[2]	7/24/2008		119	mg/L
	10/20/2010		83	mg/L
	8/9/2012		91	mg/L
	7/24/2013		94	mg/L
	7/30/2014		110	mg/L
	7/8/2015		110	mg/L
	9/12/2017		110	mg/L
TDS[1]	7/24/2008	500	539	mg/L
	8/9/2012	500	330	mg/L
	7/24/2013	500	340	mg/L
	7/30/2014	500	380	mg/L
	9/12/2017	500	370	mg/L
Arsenic	7/24/2013	10	10	ug/L
	7/30/3014	10	10	ug/L
	7/8/2015	10	9.4	ug/L
	9/12/2017	10	11	ug/L
Nitrate (as NO_3)	8/5/2008	45	0.4	mg/L
	6/19/2013	45	0	mg/L
	7/15/2014	45	0	mg/L
	4/10/2015	45	0	mg/L

Notes:

1. Secondary MCL
2. No MCL - not toxic in drinking water

Table 3-6 summarizes water quality for the potential surface water sources waters to be used for groundwater recharge. Water quality in the source water is generally better quality than in groundwater, with concentrations for all constituents below their MCLs.

Table 3-6. Summary of Water Quality Data from Surface Water Sources.

California Aqueduct – Check 28 (Kettleman City)					
Constituent	**MCL**	**Minimum**	**Average**	**Maximum**	**Units**
Chloride[1]	250	27	78	114	mg/L
Sodium[1]		23	51	76	mg/L
TDS[1]	500	142	257	361	mg/L
Arsenic[1]	10	ND	2	3	ug/L
Nitrate (as NO_3)[1]	45	0.11	0.56	1.26	mg/L
Kern River					
Constituent	**MCL**	**Minimum**	**Average**	**Maximum**	Units
Chloride[2]	250	2.2	6.4	10	mg/L
Sodium[2]		4.5	15	30	mg/L
TDS[3]	500	40	129	227	mg/L
Arsenic[2]	10	ND	ND	ND	ug/L
Nitrate (as NO_3)[3]	45	ND	0.7	1.8	mg/L

[1] Source: CA DWR Water Data Library (2014)

[2] Source California Central Valley Regional Water Quality Control Board (2015)

[3] Source: KCWA Water Supply Reports (2010; 2011, 2012; 2013)

The recharge of surface water with groundwater through recharge operations will result in blended water quality. The actual aquifer water quality resulting from the mixing of surface and groundwater will depend on the volume of water recharged, the duration of recharge and the distance away from the project. No adverse geochemical reactions are predicted based on the mixing of surface and groundwater quality for the proposed project. Due to the fact that both surface water sources have levels of dissolved solids, trace minerals and major ions lower than those found in groundwater, the blended mix that results from recharge will lead to lower levels of total dissolved solids, major ions and trace minerals in the mixing zone within the aquifer.

Based on a Phase 1 Environmental Site Assessment (GEI 2019), use of hazardous material has not been recorded on-site; however, undiscovered pollutants (if present), such as nitrogen and other fertilizers during farming production, may migrate from the soil into the groundwater system during recharge. Therefore, a **potentially significant impact** could occur. The following mitigation measure has been identified to address this impact:

Mitigation Measure HYDRO-1: Monitor Groundwater Quality.

To minimize potential effects of project construction and operation on groundwater quality, the District will ensure that the following measures are implemented:

- The District will drill one or two shallow monitoring wells within the Corn Camp site to monitor groundwater quality during and after recharge operations. The purpose of this monitoring is to verify groundwater recharge is not detrimentally affecting groundwater quality in the project area.

- During construction of the recharge basins, approximately 8 feet of fine ground soils (silts and clays) will be excavated from each recharge basin to expose the underlying fine to medium grained sand in the base of each recharge basin. During soil excavation and removal, the contractor and inspecting engineer will monitor for evidence of soil contamination (color, odor, buried tanks, pipelines). If contaminated soils are encountered during excavation, these soils will be analyzed to identify the type and extent (vertically and horizontally) of contamination present. Contaminated soils will either be treated on site or disposed of at a hazardous waste landfill.

- If contaminated soils are encountered during construction, additional groundwater monitoring wells may be installed to verify that groundwater has not been impacted. As an added measure of protection, the District will cease the construction of the pond in and adjacent to contaminated soils. During the operational phase of the proposed project, the District will conduct annual monitoring to verify that groundwater quality is not being adversely impacted by the recharge operation.

Implementing Mitigation Measure HYDRO-1 would reduce the potential effects related to groundwater resources to a less-than-significant level because monitoring and corrective action. Therefore, the proposed project would have a **less-than-significant impact with mitigation**.

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

Changes to groundwater levels are expected to be beneficial to existing and potential users of the groundwater resource. GEI has completed a mounding analysis which is provided in the *Assessment of Potential Groundwater Impacts* (*see* **Appendix C**). The results of the mounding analysis indicate that the proposed project will have the beneficial impact of raising groundwater levels in the vicinity of the recharge site, resulting in lower energy costs to lift water from nearby wells. The longer the recharge period, the greater the mounding, which is provided in **Table 3-7**.

Table 3-7. Height of Groundwater Mound for Recharge Periods of 60, 120 and 200 Days (ft).

Recharge Period	Distance from Project Center (miles)	Horizontal Hydraulic Conductivity (K value) (feet/day)		
		46 ft/day	77 ft/day	108 ft/day
60 days	0	58	39	30
	1	3.6	4.3	4.4
	2	0.3	0.5	0.7
120 days	0	67	45	34
	1	8.8	8.5	7.8
	2	1.2	1.9	2.2
200 days	0	73	49	37
	1	14	12	11
	2	3.1	3.9	4.1

Notes: The K value describes the ease with which water can move through pore spaces or fractures; the analysis included 3 K values. The analysis also assumed an infiltration rate of 1.5 feet per day and an average saturated zone thickness of 385 feet.

Due to the fact that a constant infiltration rate is being used under all conditions, the rate that water infiltrates into the ground is the same regardless of the horizontal conductivity (K). A low K value causes water to mound directly under the recharge site, thus limiting spreading. Water tends to be confined in the region close to the point of recharge with low K values, causing the mound's center to be distinctly higher. However, less water spreads from the center, so groundwater levels at the periphery of the mound are lower.

Figures 3-1, 3-2, and 3-3 show the increases in anticipated groundwater levels at increasing distances from the project's center for recharge periods of 60, 120, and 200 days, respectively. These figures indicate that for a 120-day recharge period, the project could raise groundwater levels from 34 to 67 feet in the center of the basin and that levels could rise by 8 to 9 feet at a distance of 1 mile. For a continuous recharge duration of 60 days, groundwater elevations at the project site could be expected to increase by 30 to 58 feet, while 200 days of continual recharge could be expected to increase groundwater elevations at the project site by 37 to 73 feet. The height and extent of the groundwater mound will be monitored once the project comes into operation.

Figure 3-1: Predicted Recharge Mound Height: 60-day Recharge Period.

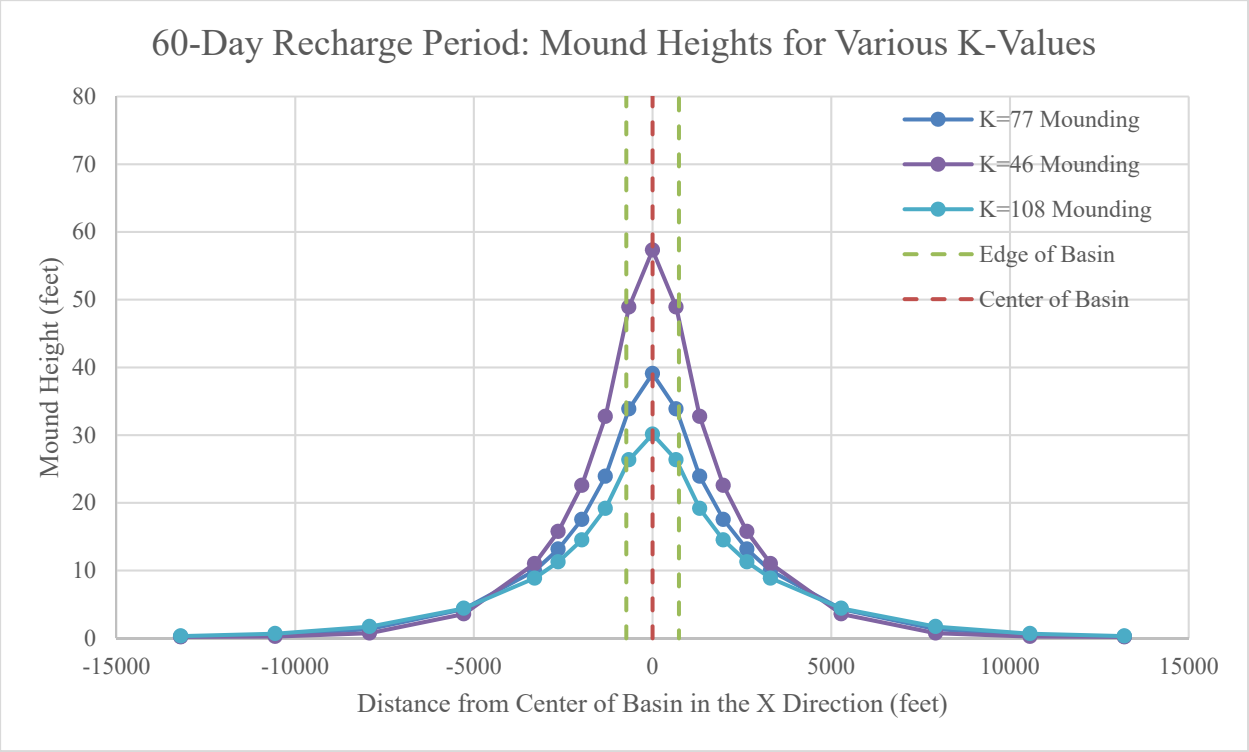


Figure 3-2: Predicted Recharge Mound Height: 120-day Recharge Period.

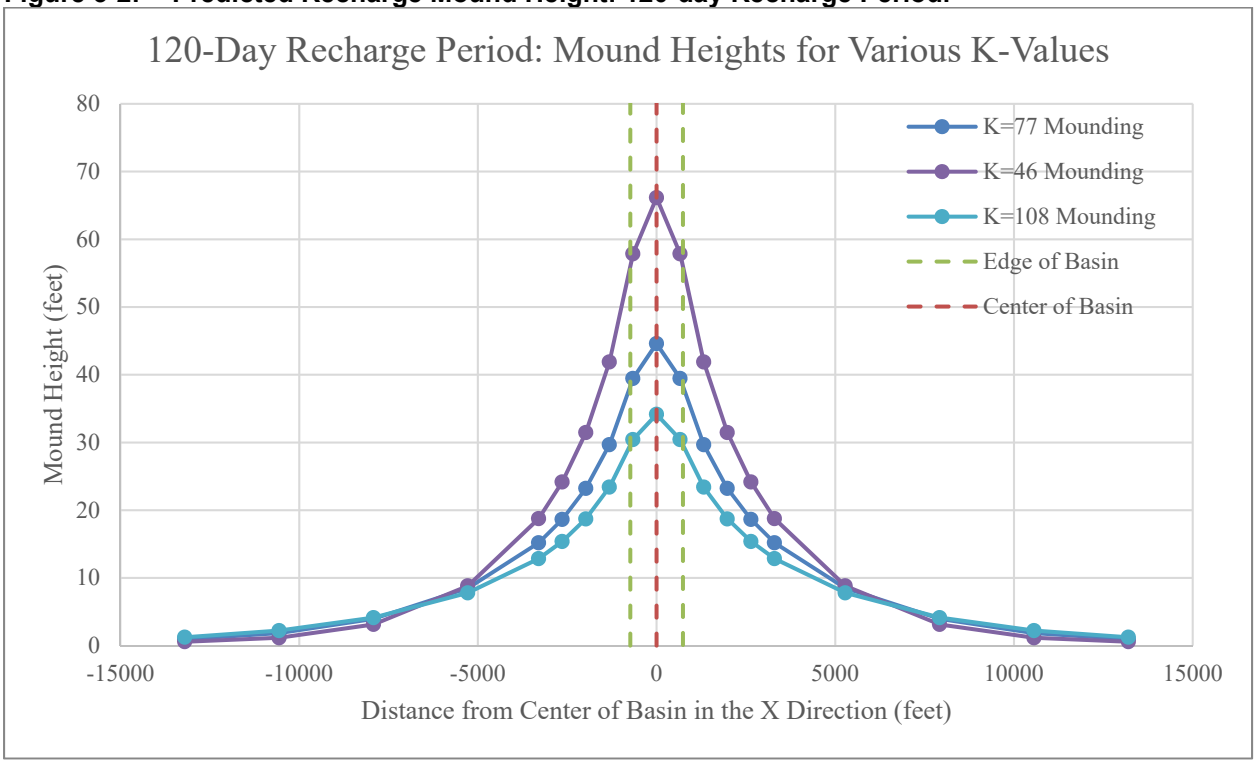
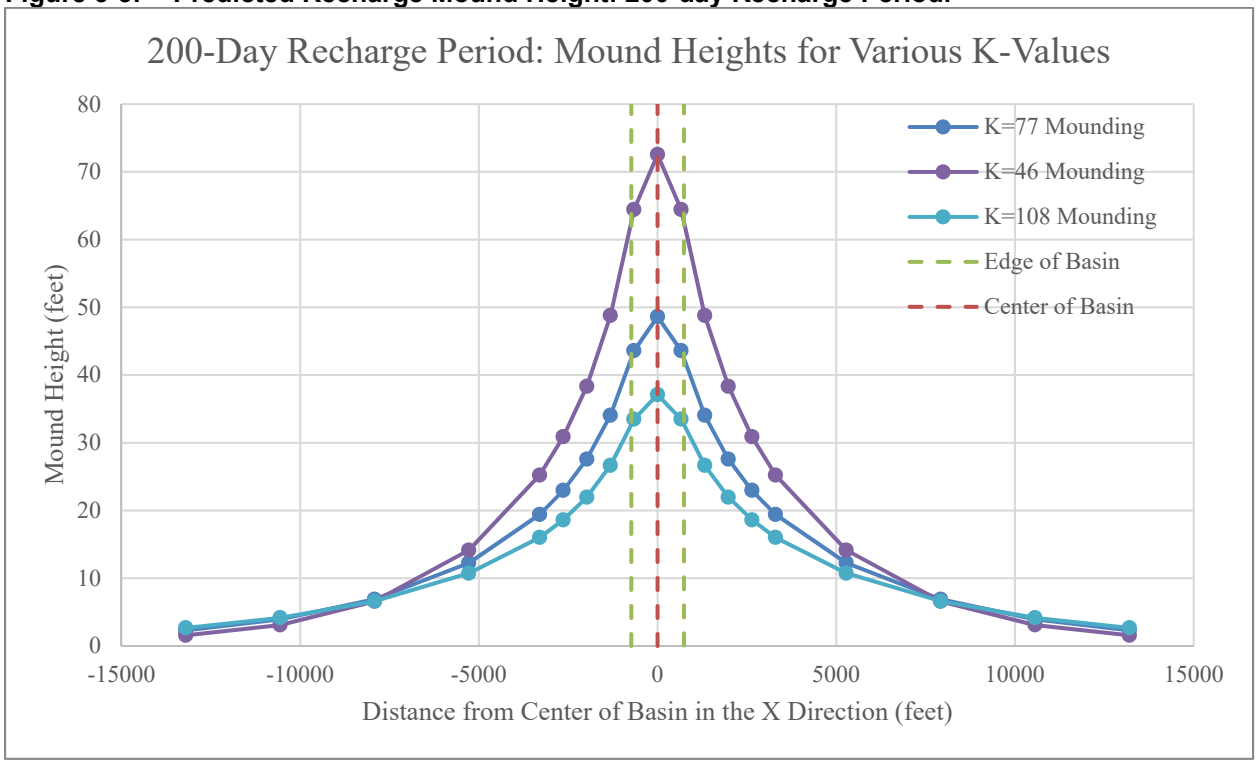


Figure 3-3: Predicted Recharge Mound Height: 200-day Recharge Period.



The proposed project will raise groundwater levels in the vicinity of the recharge site. Therefore, impacts are **less-than-significant**.

#10 -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:

#10 -i, ii, iii, and iv) Result in substantial erosion or siltation on- or off-site; Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 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 Impede or redirect flood flows?

The District would create a 50-acre recharge pond which would alter the existing drainage pattern of the site; however, the purpose of the proposed project is to retain water. The District would prepare and implement a SWPPP, which will describe the construction activities to be conducted, BMPs that would be implemented to prevent soil erosion and contaminated stormwater discharges into waterways, and inspection and monitoring activities that would be conducted. As part of ongoing maintenance, the District would maintain the pond so that substantial erosion and siltation do not occur. Because surface water would be held within the pond, the groundwater recharge pond would not result in off-site runoff or redirection any flood flows. The District would add approximately 0.13 acre of impervious surfaces associated with the pump station and water storage

tank; however, because of its limited size, this facility would not substantially increase surface runoff. The proposed project is located in agricultural area that does not contain a stormwater drainage system. Therefore, impacts are **less-than-significant**.

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

The project is not located in a flood hazard, tsunami, or seiche zone, therefore there will be **no impact.**

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

The project purpose is to enhance groundwater management by increasing the District's ability to recharge groundwater in wet years. Therefore, the impact is **less-than-significant**.

3.11 Land Use and Planning

#11. LAND USE AND PLANNING. Would the project:

#11 -a. Physically divide an established community?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#11 -b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.11.1 Environmental Setting

The project site is zoned as exclusive agriculture (Kern County 1988). The project site is located in a rural area and surrounded by various agricultural crops and water conveyance canals. The project site is located 3 miles west of the unincorporated community of Buttonwillow.

3.11.2 Discussion

#11 -a and b. Physically divide an established the community, and cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed project is located within a historically active agricultural field, in an area zoned exclusively for agriculture (Kern County 1988). The proposed project is also located outside of existing communities and are consistent with existing zoning. There are no adopted HCPs, NCCPs, other local, regional, or state habitat conservation plans within the project sites or vicinity. Therefore, there would be **no impact**.

3.12 Mineral Resources

#12. MINERAL RESOURCES. Would the project:

#12 -a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#12 -b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.12.1 Environmental Setting

The project site is located within a Surface Mining and Reclamation Act of 1975 (S.M.A.R.A.) study area for aggregate materials in the Bakersfield Production-Consumption Region. The project site is designated as mineral resource zone [MRZ]-3 (Areas containing mineral deposits, the significance of which cannot be evaluated from available data) (DOC 2009).

3.12.2 Discussion

#12 -a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

The project site is located in a S.M.A.R.A. study area but there are no known significant mineral deposits. The project includes construction of groundwater recharge pond. The pond would be constructed on a historically active agricultural field and would disturb 50-acres in total. There would be no loss of mineral resources, however, the site would not be available for extraction of mineral resources (if any are present) while the project is in operation. Therefore, this impact would be **less-than-significant**.

#12 -b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The project sites are not located within the vicinity of a locally important mineral resource recovery site. There would be **no impact**.

3.13 Noise

#13. NOISE. Would the project:

#13 -a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable standards of other agencies?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#13 -b. Generation of excessive ground-borne vibration or ground-borne noise levels?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#13 -c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.13.1 Environmental Setting

The proposed project is located in a predominately agricultural area. The closest sensitive receptors would be the residences located on the northside of State Route (SR) 58, approximately 1 mile south of the project site. The Kern County Code of Ordinances states that construction related noise is limited to the hours of 6:00 a.m. to 9:00 p.m. on weekdays and 8:00 a.m. to 9:00 p.m. on weekends (Kern County 2020).

3.13.2 Discussion

#13 -a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable standards of other agencies?

Construction of the proposed project would temporarily increase the ambient noise levels within the vicinity of the project site due to the use of heavy machinery during construction activities. Increase ambient noise would occur intermittently during the construction. All work at the proposed project sites would be limited to the hours identified in Kern County's Noise Ordinance.

Although construction activities would for the most part occur only during the daytime hours, uncontrolled construction noise could still be considered disruptive to residents adjacent to the proposed project, however, the closest residence are approximately 1 mile south of the project site, therefore, impacts would not be significant. Typical composite noise levels for construction activities, and distances of various noise contours from construction sites are presented in **Table 3-8.**

Table 3-8. Typical Noise Levels During Construction.

		Approximate Distance (feet) to Reduce Noise to Given dBA, Leq)[1]		
Construction Activity	Noise Level at 50 feet (dBA), equivalent continuous sound level in decibels [Leq])[2]	60	65	70
Ground Clearing	84	790	450	250
Excavation	89	1,400	800	450
Well drilling (driver)	80	430	235	150
Foundation	78	400	220	130
Erection	85	890	500	280
Finishing (exterior)	89	1,400	800	450

Notes:

1 EPA, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, December 1971; United States Department of Transportation, Federal Highway Administration, Office of Planning, Environment, and Realty, Roadway Construction Noise Model, June 28, 2017.

2 Calculations assume a 6 dBA reduction for each doubling of distance from the noise source.

dBA = A-weighted decibels

Leq = equivalent continuous sound level in decibels

During operation, the proposed project will not generate loud noises. Therefore, noise would be **less-than-significant**.

#13 -b. Generation of excessive ground-borne vibration or ground-borne noise levels?

Ground vibration would be caused during construction activities and would primarily occur during excavation for the groundwater recharge pond. Ground vibration may occur during operation; however, any impact would be restricted to maintenance activities. Vibrations would be detectable by nearby sensitive receptors, however, there are no nearby sensitive receptors. No adverse levels of vibration would be generated during project operations. Therefore, impacts would be **less-than-significant**.

#13 -c) For a project located within-the vicinity of a private airstrip or-an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Kern County has established an Airport Land Use Compatibility Plan which has been incorporated into the General Plan (Kern County 2012). The proposed project is located approximately 8 miles north of the Elk Hills-Buttonwillow Airport. The proposed project is not located within an Airport Influence Area. The proposed project would not expose people residing or working in the area to excessive noise levels. There would be **no impact**.

3.14 Population and Housing

#14. POPULATION AND HOUSING. Would the project:

#14 -a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#14 -b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.14.1 Environmental Setting

The project sites are located in the unincorporated area of Kern County. In 2019, the population of Kern County was estimated to be 916,464 (Department of Finance [DOF] 2019).

3.14.2 Discussion

#14 -a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The project would not be growth inducing and as such would not result in the development of new housing. The project would not require additional employees to operate. There would be **no impact**.

#14 -b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project would not displace people or housing. The project sites are located in a predominately agricultural area with little to no residential properties in the vicinity. There would be **no impact**.

3.15 Public Services

#15. PUBLIC SERVICES. Would the project:

#15 -a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
Fire protection?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
Police protection?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
Schools?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
Parks?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
Other public facilities?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.15.1 Environmental Setting

The Kern County Sheriff and California Highway Patrol provide law enforcement services for unincorporated Kern County. The Kern County Fire Department provides fire protection to residents of the unincorporated areas of the County, and the cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Tehachapi and Wasco (Kern County 2004b). A mutual agreement between the County and the cities of Bakersfield, Taft, and California City allows for protection and assistance in the jurisdiction of each as needed. The County also has a mutual aid contract with U.S.F.W.S. and a service agreement with the Bureau of Land Management.

3.15.2 Discussion

#15 -a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

The proposed project would not require new or altered government facilities, as the project would not increase the need for public services from the existing conditions. There would be **no impact**.

3.16 Recreation

#16. RECREATION. Would the project:

#16 -a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#16 -b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.16.1 Environmental Setting

The Buttonwillow Parks and Recreation Department operates recreational facilities within the unincorporated community of Buttonwillow which is 3 miles east of the project site.

3.16.2 Discussion

#16-a and b. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated or include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

The project is not growth inducing and would not increase the use of existing parks or recreational facilities or require the construction or expansion of recreational facilities. There would be **no impact**.

3.17 Transportation

#17. TRANSPORTATION. Would the project:

#17 -a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#17 -b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#17 -c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#17 -d. Result in inadequate emergency access?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.17.1 Environmental Setting

The proposed project is located approximately 1 mile north of SR 58 in a rural area of Kern County. SR 58 provides access to I-5 and SR 99. There are no transit or on-street bicycle/pedestrian facilities near the project site locations.

3.17.2 Discussion

#17 -a, b, c, and d). Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? Result in inadequate emergency access?

The proposed project would not conflict with any program plan, ordinance, or policies. Construction traffic would utilize existing public roads to deliver equipment, supplies, and workers to and from the project sites. Construction of the project would involve up to 15 workers. The groundwater recharge pond would be constructed on a historically active agricultural field. The pump station and water storage tank would be constructed on an existing laydown/storage area.

Therefore, the project would not require any road closures or result in inadequate emergency access. Since no new roads are being developed, the project would not increase hazards due to a geometric design feature or incompatible uses. There would be **no impact**.

3.18 Tribal Cultural Resources

#18. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

#18 -a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#18 -b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.18.1 Environmental Setting

A Tribal Sacred Lands search request was filed with the NAHC. The search was completed on November 14, 2019, with the conclusion that no tribal cultural resources are located on or in the vicinity of the proposed project site (NAHC 2019).

On November 22, 2019 the District submitted a notification letter to the Torres Martinez Desert Cahuilla Indians pursuant to Assembly Bill 52; to date, the District has not received a response.

3.18.2 Discussion

#18 -a and b) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)? A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

There are no known tribal cultural resources located in the vicinity of the project sites. There are no known Indian Sacred Sites in the vicinity of the project sites. Since no known Indian Sacred Sites have been identified within the project site, there would be no direct, indirect, or cumulative

impacts to Indian Sacred Sites from the proposed project. The proposed project would not have the potential to affect or prohibit access to any ceremonial use of Indian Sacred Sites. There would be **no impact**.

3.19 Utilities and Service Systems

#19. UTILITIES AND SERVICE SYSTEMS. Would the project:

#19 -a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#19 -b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#19 -c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#19 -d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.
#19 -e. Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

3.19.1 Environmental Setting

The project site and vicinity are served by PG&E, Southern California Edison, and Southern California Gas (Kern County 2004). Sewage disposal is handled by both public and private agencies, and by private individual systems. Several incorporated and unincorporated communities are served by wastewater treatment plants managed by community service districts. The closest wastewater treatment plant is the Buttonwillow Community Wastewater Treatment Plant, approximately 4 miles southeast of the project site. Domestic water is serviced to the public by various water purveyors consisting of public and private water systems. The closest landfill is the Shafter-Wasco Recycling and Sanitary Landfill, approximately 14 miles northeast of the project site.

3.19.2 Discussion

#19 -a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No utility services would need to be constructed or expanded as a result of the proposed project. Water would be delivered to the site delivered via the existing Corn Camp Canal and 7th Standard Pipeline. Implementation of the proposed project would result in **no impacts**.

#19 -b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

The proposed project consists of constructing a groundwater recharge pond with water obtained from existing District sources (e.g., Kern River, SWP) and delivered via the existing Corn Camp Canal and 7th Standard Pipeline. The District would only deliver water during "wet" years when surface water supplies are adequate. There is no reasonably foreseeable future development related to the construction and operation of the proposed project. There would be **no impact**.

#19 -c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

See Question "a" above. Wastewater would not be produced as a result of the project. There would be **no impact**.

#19 -d and e) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? Comply with Federal, State, and local management and reduction statues and regulations related to solid waste?

The proposed project would not create substantial amounts of solid waste, and as such would not exceed the capacity of local infrastructure. Minimal waste would be generated during construction and no increase in waste production would occur during the operation of the project. The project would comply with federal, state, and local management and reduction statues and regulations related to solid waste. There would be **less-than-significant** impacts.

3.20 Wildfire

#20. WILDFIRE. If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, **would the project**:

#20 -a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#20 -b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#20 -c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**
#20 -d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? No.	Have No Impact? **Yes.**

3.20.1 Environmental Setting

The project site is not located in a high severity fire zone. The project site is located in the unincorporated Local Responsible Area (LRA). The project site is classified as LRA un-zoned (CALFIRE 2007). The Kern County Fire Department provides fire protection for residents of the unincorporated areas of the County and the cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Tehachapi and Wasco (Kern County 2004b).

3.20.2 Discussion

#20 -a, b, c, and d) Substantially impair an adopted emergency response plan or emergency evacuation plan? Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? Expose people or structures to significant risks, including

downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project site is not located in a high severity fire zone. The short-term, temporary nature of construction would not pose a risk to emergency response or evacuation during an emergency. The project would not create any infrastructure that would exacerbate fire risk or the risk of flooding, slope instability, or drainage changes. There would be **no impact**.

3.21 Mandatory Findings of Significance

#21. MANDATORY FINDINGS OF SIGNIFICANCE. Would the project:

#21 -a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.
#21 -b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? **Yes.**	Have Less-than-Significant Impact? No.	Have No Impact? No.
#21 -c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	Have Potentially Significant Impact? No.	Have Less-than-Significant Impact with Mitigation Incorporated? No.	Have Less-than-Significant Impact? **Yes.**	Have No Impact? No.

3.21.1 Discussion

#21 -a. Would the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

The analysis conducted in this IS concludes that implementation of the proposed project would not have a significant impact on the environment. As evaluated in Chapter 3.4, Biological Resources, impacts on biological resources would be less-than-significant or less-than-significant with mitigation incorporated. The proposed project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or reduce the number or restrict the range of an endangered, rare, or threatened species. As discussed in Chapter 3.5, Cultural Resources, the proposed project would not eliminate important examples of the major periods of California history or prehistory. This impact would be **less-than-significant with mitigation incorporated**.

#21 -b. Would the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

The proposed project will enable the District to better sustain groundwater levels and improve groundwater quality, two objectives of California's Groundwater Sustainability Management Act. Past projects include the Northern Area Pipeline Project, 7th Standard Pipeline Project, and the Palms Groundwater Banking Project – Recharge Phase. Future projects include the Palms Groundwater Banking Project – Recovery Phase.

The District prepared an IS/MND for the Northern Area Project and 7th Standard Pipeline Project, which entailed the installation of buried pipeline to convey water and reduce seepage from open earthen canals. The District also prepared an IS/MND for the Palms Groundwater Banking Project – Recharge Phase, which involves groundwater replenishment and water banking at sites that total 1,160 acres. Mitigation measures similar to measures established within the Northern Area Project, 7th Standard Pipeline Project, and Palms Groundwater Banking Project – Recharge Phase have been established for the proposed project. Construction of the project would not have a significant cumulative effect to resources in the proposed project area if mitigation measures are followed during construction.

The District is considering the Palms Groundwater Banking Project – Recovery Phase, which would recover groundwater banked at the Palms. The District is completing groundwater modeling and discussing potential impacts with neighboring water agencies. If the District decides to proceed with the Palms Groundwater Banking Project – Recovery Phase, an Environmental Impact Report, with the incorporation of mitigation measures for hydrology and water quality, would be prepared.

The proposed project would result in less than significant impacts with mitigation incorporated, less-than-significant impacts, or no impacts on aesthetics, air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire. The temporary nature of the proposed project's construction impacts, and the minor, negligible changes to long-term operations and maintenance at the project site would result in no impacts or less-than-significant environmental impacts on the physical environment. None of the proposed project's impacts make cumulatively considerable, incremental contributions to significant cumulative impacts with incorporation of mitigation presented in this IS. This impact would be **less-than-significant with mitigation incorporated**.

#21 -c. Would the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project would result in less-than-significant impacts and would not cause substantial adverse effects on human beings, either directly or indirectly. This impact would be **less-than-significant**.

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Appendix A – Project Site Photos



Photograph 1: Facing south from northwest corner of project site.



Photograph 2: Facing south from northeast corner of project site.



Photograph 3: Facing east from southwest corner of project site.



Photograph 4: Facing west from southeast corner of project site.

Appendix B – Biological Technical Report

Draft

Biological Technical Report

Buena Vista Water Storage District

Corn Camp Groundwater Recharge Pond

Prepared for:

Buena Vista Water Storage District

December 2019

Prepared by:

GEI Consultants

Consulting Engineers and Scientists

Draft

Biological Technical Report

Buena Vista Water Storage District

Corn Camp Groundwater Recharge Pond

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December 17, 2019

Project No. 1801694

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Appendix A – Special-status Species Query Results
Appendix B – Photographs of Project Site

Abbreviations and Acronyms

AFY	acre feet per year
BMPs	Best Management Practices
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
District	Buena Vista Water Storage District
ESA	Endangered Species Act
FGC	Fish and Game Code
GEI	GEI Consultants, Inc.
IPaC	Information for Planning and Conservation
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
project	Corn Camp Groundwater Recharge Pond Project
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army of Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 Introduction

This biological technical report addresses sensitive biological resources that could be affected by implementing the Buena Vista Water Storage District (District) Corn Camp Groundwater Recharge Pond Project (Project). Potential for special-status species to occur on the project site and be affected by project implementation is evaluated. In addition, measures are recommended to avoid or minimize potential for impacts on special-status species during project activities.

1.1 Project Location and Background

The District's service area includes approximately 50,000 acres in two distinct areas – Buttonwillow Service Area and Maples Service Area – in the lower Kern River watershed of western Kern County (**Figure 1-1**). The project site is approximately 20 miles west of Bakersfield and immediately west of Buttonwillow, in the Lokern U.S. Geological Survey (USGS) 7.5-minute quadrangle.

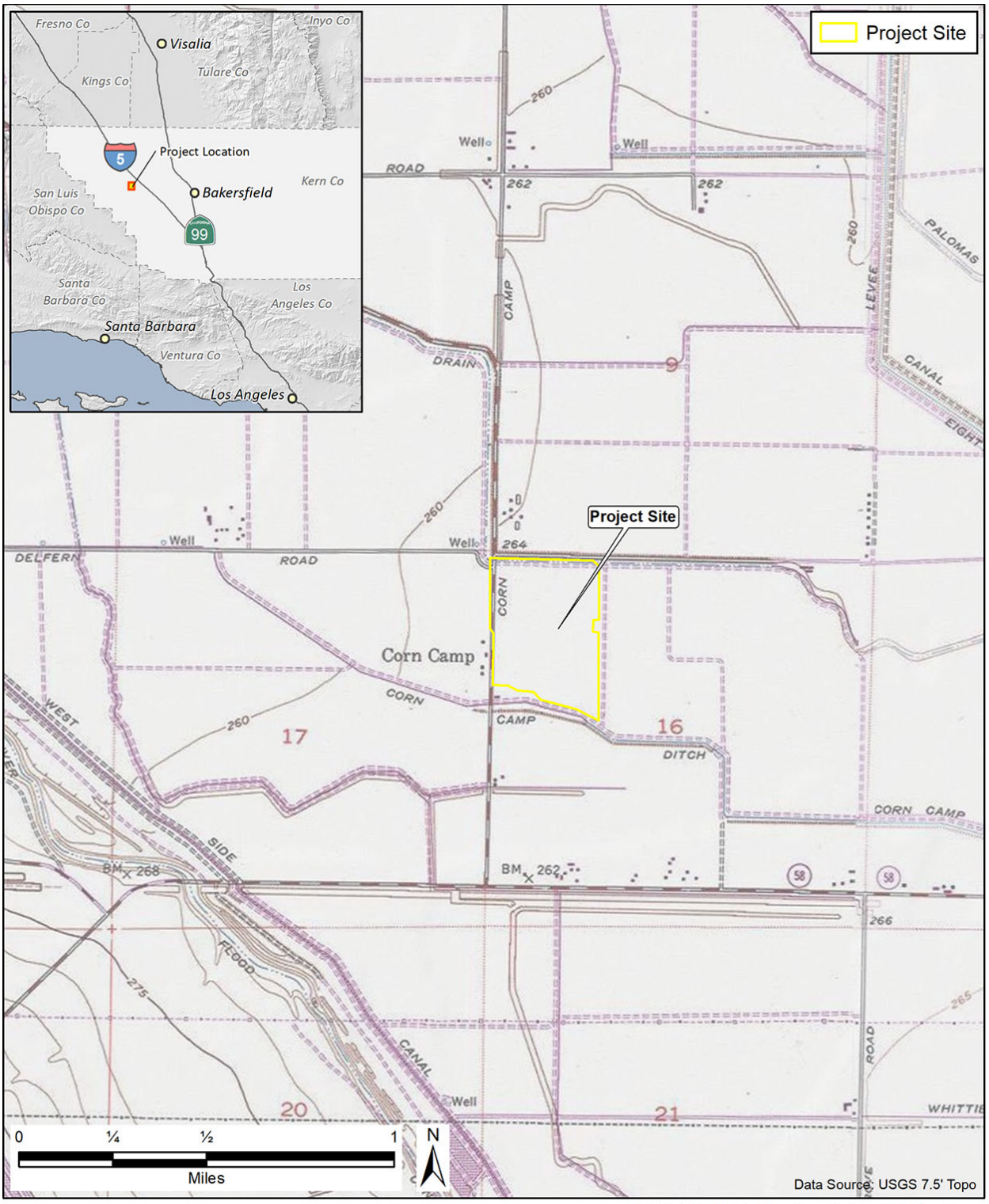
The project has two primary objectives:

- Increase conjunctive management on the west side of Kern County by expanding the area's ability to accept surface water for groundwater recharge during periods when surface water is available
- Reduce agricultural demand by replacing approximately 68 acres of irrigated farmland with spreading grounds

The project would benefit groundwater users by improving groundwater management and quality. Water supply and energy savings would result from a general increase in groundwater elevations in the project area. The project would be operated to provide a long-term benefit to the basin and aid in regional compliance with the Sustainable Groundwater Management Act. It would also enable groundwater pumpers (both project proponents and local domestic and municipal users) to reduce pumping costs and lessen the need to deepen wells.

The project site has an established history of irrigated crop production. Retiring these lands from irrigated agriculture will enable water to be delivered to the area based on availability of water for recharge, rather than in response to the pattern of crop demand. Therefore, the timing of the deliveries will differ in a way that benefits the Buttonwillow Sub-basin. The District anticipates that retiring this irrigated land from production and converting it to recharge facilities will reduce irrigation demand by approximately 250 acre-feet per year (AFY) and reduce nitrates now conveyed to groundwater from deep percolation of irrigation applications by eliminating the application of nitrogen and other fertilizers.

Figure 1-1. Project Location.



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Source: GEI Consultants, Inc. 2019

1.2 Project Description

The recharge pond would be constructed on an approximately 81-acre parcel at the southwest corner of the Corn Camp Road and Sullivan Road intersection (**Figure 1-2**). The District would enter into a 25-year lease (with an option to extend) with Chevron, the property owner. The approximately 50-acre recharge pond would expose sand for percolation at 8 feet deep. Approximately 650,000 cubic yards of soil would be excavated and used to construct berms to contain the pond. Maximum recharge estimates, based on a full-year operation schedule, would average 24,500 AFY. Water from existing District sources (e.g., Kern River, State Water Project) would be delivered to the recharge pond via the existing Corn Camp Canal and 7th Standard Pipeline.

Construction activities are anticipated to be completed in a 2-month period in 2020. The District would use several scrapers, a bell truck with box scraper, and a water truck for dust control. Storage and staging of equipment and material would be located entirely within the 81-acre parcel.

1.3 Biological Resources Assessment Methods

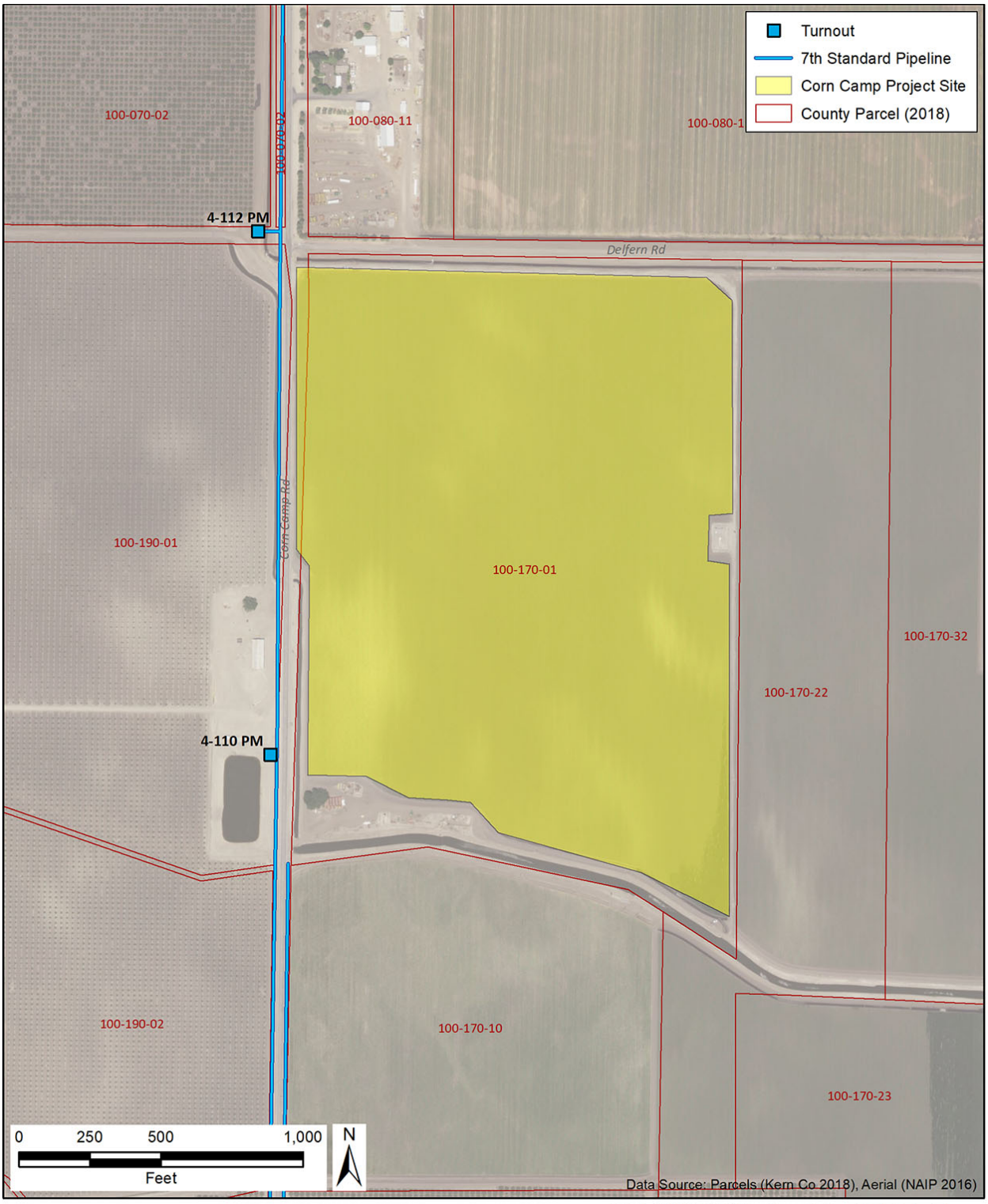
1.3.1 Pre-field Investigation

Before conducting the field survey, GEI, Consultants, Inc. (GEI) reviewed the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2019) and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2019). These reviews were centered on the Lokern USGS 7.5- minute quadrangle and included the eight surrounding quadrangles. A list of resources under jurisdiction of the U.S. Fish and Wildlife Service (USFWS) that could occur on or near the project site was obtained from the Information for Planning and Conservation (IPaC) website (USFWS 2019a), and the USFWS online map of critical habitat for federally-threatened and endangered species (USFWS 2019b) was reviewed. Results of the CNDDB and CNPS Inventory queries and the IPaC list are provided in **Appendix A**.

1.3.2 Field Surveys

A field survey of the project site was conducted by GEI biologist Anne King on May 22, 2019. The survey focused on determining if sensitive habitats are present on or adjacent to the project site and evaluating potential for special-status species and to occur on or adjacent to the project site, as well as potential for these resources to be affected by project activities.

Figure 1-2. Corn Camp Groundwater Recharge Pond Project Area.



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Source: Buena Vista Water Storage District 2019, adapted by GEI Consultants, Inc. in 2019

2.0 Environmental Setting

The project site is located along the southwestern edge of the San Joaquin Valley and is entirely comprised of and surrounded by agricultural land. Topography is flat, with an average elevation of approximately 265 feet above mean sea level. Representative photographs of the project site are provided in **Appendix B**.

2.1 Vegetation and Wildlife

The project site is limited to existing agricultural land; the site is not currently cultivated but is regularly maintained (i.e., disked). No native vegetation assemblages are present on or adjacent to the project site. Irrigation canals border the site on the north and south sides and a portion of the west side. Beyond the canals, barren dirt road shoulders and paved roadways occur to the north and west. The surrounding agricultural lands are actively cultivated in pistachio orchard and cotton. Agricultural equipment yards are adjacent to the southwest and northwest portions of the site; these yards are primarily barren, with small areas of ornamental trees and shrubs.

Agricultural habitats adjacent to the project site support a low diversity of wildlife species that are adapted to these intensely managed and relatively disturbed environments. Because the project site and adjacent areas are primarily comprised of paved roadways and actively cultivated lands, only the most mobile species (e.g., birds and mammals with large home ranges) that typically use highly altered habitats are likely to occur on the project site. Although the irrigation canals convey water in some months, they are often dry and are regularly maintained, supporting very little vegetation and providing poor-quality habitat for wildlife.

2.2 Special-status Species

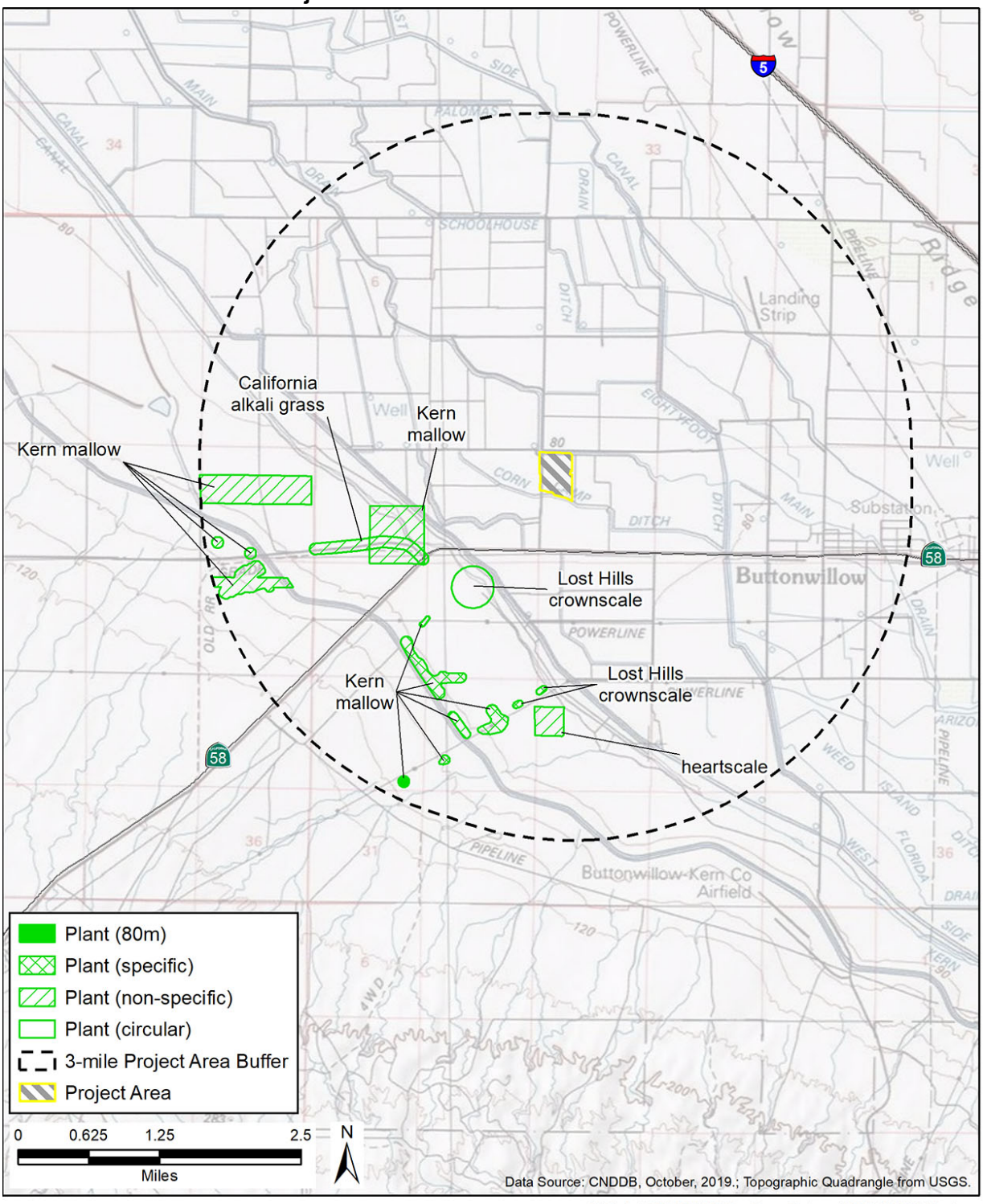
For purposes of this analysis, special-status species include plants and animals that fall into any of the following categories:

- taxa (i.e., species and other taxonomic categories) officially listed, or candidates or proposed for listing, by the federal government or the State of California as endangered, threatened, or rare
- fish and wildlife identified by CDFW as species of special concern or listed as Fully Protected under the FGC
- plants considered by CDFW to be “rare, threatened, or endangered in California”

Results of the CNDDB USGS 9-quadrangle searches (*see* **Appendix B**) yielded occurrences of 45 special-status plants and animals, 15 of which have been documented within 3 miles of the project site, as shown in **Figure 2-1** and **Figure 2-2**. However, most of these occurrences are from grassland, saltbush scrub, and other natural shrub habitats south and west of the agricultural lands

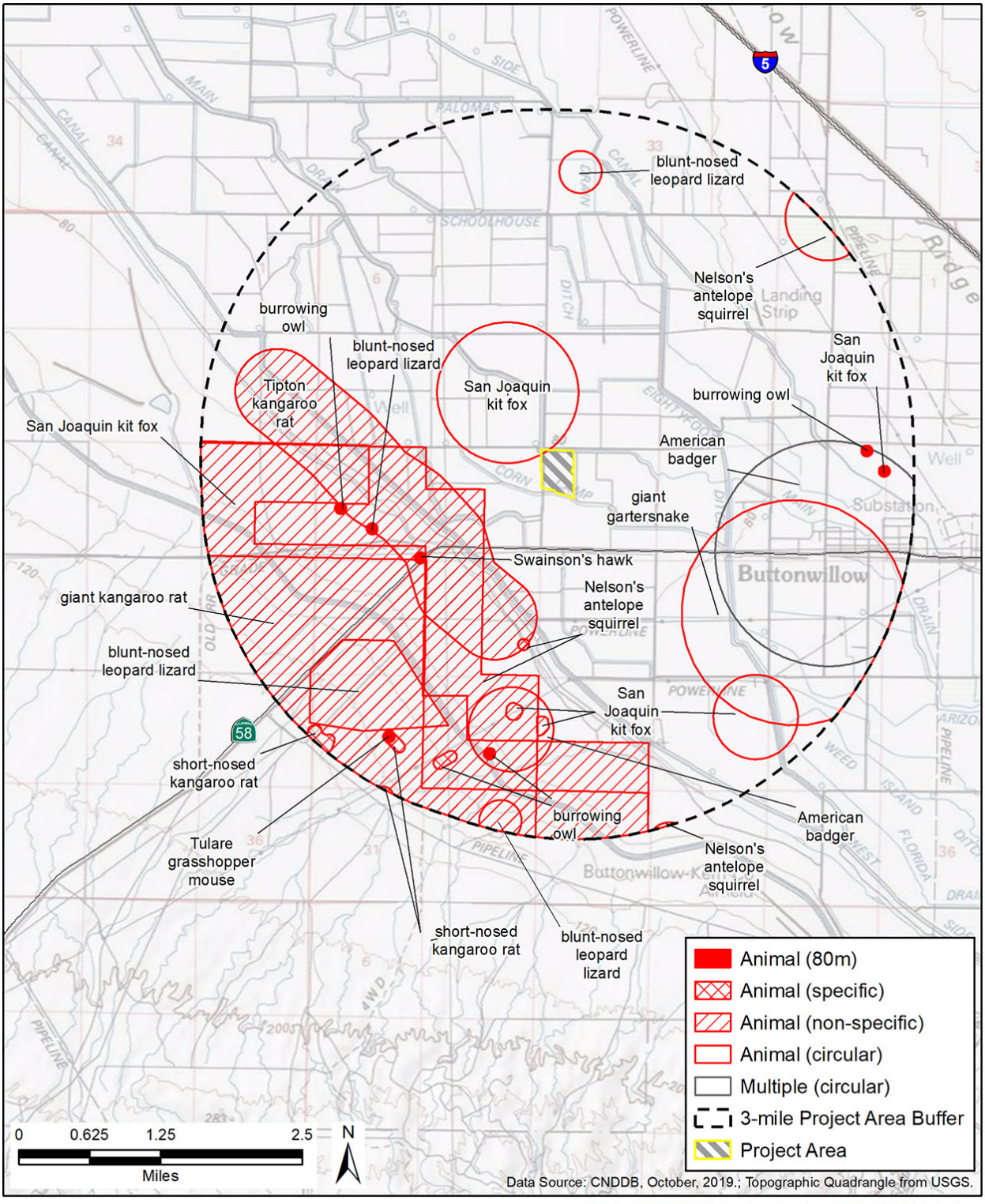
on and surrounding the project site. (Note: Not all plants and animals included in the search results in **Appendix B** meet the special-status definition described above.)

Figure 2-1. California Natural Diversity Database Occurrences of Special-status Plants within 3 Miles of the Project Site.



Source: CDFW 2019, adapted by GEI Consultants, Inc. in 2019

Figure 2-2. California Natural Diversity Database Occurrences of Special-status Animals within 3 Miles of the Project Site.



Source: CDFW 2019, adapted by GEI Consultants, Inc. in 2019

Table 2-1 provides information on each special-status plant that was included in the CNDDB or CNPS search results or on the USFWS species list. Based on observations made during the field survey, habitat for special-status plants is absent from the project site, and none of the species listed in **Table 2-1** have potential to occur on or adjacent to the project site.

Table 2-1. Special-status Plants Evaluated for Potential to Occur on the Project Site.

Species	Blooming Period	Status[1]		Habitat Associations	Potential to Occur on Project Site
		Federal	State		
Horn's milkvetch *Astragalus hornii var. hornii*	May–October	–	1B.1	Alkaline soils along lake margins, in meadows, seeps, and playas	None; no suitable habitat is present on or adjacent to the project site.
Heartscale *Atriplex cordulata* var. *cordulata*	April–October	–	1B.2	Sandy saline or alkaline soils in chenopod scrub and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Earlimart orache *Atriplex cordulata* var. *erecticaulis*	August–November	–	1B.2	Valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Lost Hills crownscale *Atriplex coronata* var. *vallicola*	April–September	–	1B.2	Alkaline soils in chenopod scrub and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Lesser saltscale *Atriplex minuscula*	May–October	–	1B.1	Alkaline sandy soils in chenopod scrub, valley and foothill grassland, and playas	None; no suitable habitat is present on or adjacent to the project site.
Subtle orache *Atriplex subtilis*	June–September	–	1B.1	Alkaline soils in valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
California jewelflower *Caulanthus californicus*	February–May	E	E/1B.1	Sandy soil in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Lemmon's jewelflower *Caulanthus lemmonii*	February–May	E	1B.2	Pinyon and juniper woodland and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Slough thistle *Cirsium crassicaule*	February–May	–	1B.1	Chenopod scrub, riparian scrub, and marshes, swamps, and sloughs	None; no suitable habitat is present on or adjacent to the project site.
Recurved larkspur *Delphinium recurvatum*	March–June	–	1B.2	Alkaline soils in chenopod scrub, cismontaine woodland, and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Kern mallow *Eremalche parryi* ssp. *kernensis*	January–May	E	1B.2	Open sandy and clay soils, often at edge of clearings in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.

Species	Blooming Period	Status[1]		Habitat Associations	Potential to Occur on Project Site
		Federal	State		
Temblor buckwheat *Eriogonum temblorense*	May–September	–	1B.2	Valley or foothill grassland on clay or sandstone substrate	None; no suitable habitat is present on or adjacent to the project site.
Tejon poppy *Eschscholzia lemmonii* ssp. *kernensis*	February–April	–	1B.1	Chenopod scrub and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	February–June	–	1B.1	Marshes and swamps, playas, and vernal pools	None; no suitable habitat is present on or adjacent to the project site.
Pale-yellow layia *Layia heterotricha*	March–June	–	1B.1	Alkaline or clay soils in cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Munz's tidy-tips *Layia munzii*	March–April	–	1B.2	Alkaline clay soils in chenopod scrub and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Showy golden madia *Madia radiata*	March–May	–	1B.1	Cismontane woodland and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
San Joaquin woollythreads *Monolopia congdonii*	February–May	E	1B.2	Sandy soils in chenopod scrub, and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
California alkali grass *Puccinellia simplex*	March–May	–	1B.2	Alkaline soils in wet areas, lake margins, meadows and seeps, vernal pools, chenopod scrub, and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.
Oil neststraw *Stylocline citroleum*	March–April	–	1B.1	Clay soils in chenopod scrub, coastal scrub, and valley and foothill grassland	None; no suitable habitat is present on or adjacent to the project site.

[1] **Status Definitions**

Legal Status

E = Listed as Endangered under the federal or state Endangered Species Act

California Rare Plant Ranks

1B = Plant species considered rare or endangered in California and elsewhere (but not legally protected under the federal or state Endangered Species Acts).

California Rare Plant Rank Extensions

.1 = Seriously endangered in California (greater than 80 percent of occurrences are threatened and/or have a high degree and immediacy of threat).

.2 = Fairly endangered in California (20 to 80 percent of occurrences are threatened and/or have a moderate degree and immediacy of threat).

– = no status

Sources: CDFW 2019; CNPS 2019; GEI data 2019; USFWS 2019a

Table 2-2 provides information on each special-status animal that was included in the CNDDB search results or on the USFWS species list. Based on the review of existing documentation and habitat evaluations made during field survey, most of these species have no potential to occur on the project site. Because the project site and adjacent areas do not support natural aquatic habitat or vegetation, suitable habitat for most of the species is absent. Only five species were determined to have potential to occur on the site: burrowing owl (*Athene cunnicularia*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), western mastiff bat (*Eumops perotis californicus*), and San Joaquin kit fox (*Vulpes macrotis mutica*). However, potential for these species to occur onsite is low, due to the poor habitat conditions. Swainson's hawk and San Joaquin kit fox are state-listed as Threatened, and San Joaquin kit fox is also federally-listed as Endangered; the other species are CDFW species of special concern.

Table 2-2. Special-status Fish and Wildlife Evaluated for Potential to Occur on the Project Site.

Species	Status		Habitat Associations	Potential to Occur on the Project Site
	Federal	State		
Fish				
Delta smelt *Hypomesus transpacificus*	T	E	Semi-anadromous; typically restricted to the Sacramento-San Joaquin River Delta and the lower Sacramento River	None; no suitable habitat is present on or adjacent to the project site, which is outside the range of this species.
Invertebrates				
Crotch bumble bee *Bombus crotchii*	–	C	Open grassland and scrub habitats; primarily nests underground	None; no suitable habitat is present on or adjacent to the project site.
Vernal Pool fairy shrimp *Branchinecta lynchi*	T	–	Vernal pools and seasonal wetlands, including a wide range of sizes and depths.	None; no suitable habitat is present on or adjacent to the project site.
Amphibians				
California red-legged frog *Rana draytonii*	T	SSC	Lowlands and foothill areas, in or near permanent deep water with dense, shrubby or emergent riparian vegetation	None; no suitable habitat is present on or adjacent to the project site, which is outside the range of this species.
Western spadefoot *Spea hammondii*	–	SSC	Vernal pools and seasonal wetlands in grasslands and open woodlands	None; no suitable habitat is present on or adjacent to the project site.
Reptiles				
Blunt-nosed leopard lizard *Gambelia silus*	E	E, FP	Sparsely vegetated and relatively flat grasslands and alkali and desert scrub habitats	None; no suitable habitat is present on or adjacent to the project site.
California legless lizard *Anniella* sp.	–	SSC	Moist, loose soils in a variety of natural habitats	None; no suitable habitat is present on or adjacent to the project site.
Temblor legless lizard *Anniella alexanderae*	–	SSC	Poorly known; likely in occurs in sparsely vegetated areas with moist sandy soils	None; no suitable habitat is present on or adjacent to the project site.
Coast horned lizard *Phrynosoma blainvillii*	–	SSC	Most commonly along sandy washes with scattered low bushes	None; no suitable habitat is present on or adjacent to the project site.

Species	Status		Habitat Associations	Potential to Occur on the Project Site
	Federal	State		
California glossy snake *Arizona elegans occidentalis*	–	SSC	Wide variety of habitats, including grassland and scrub, often with loose or sandy soils	None; no suitable habitat is present on or adjacent to the project site.
San Joaquin coachwhip *Masticophis flagellum ruddocki*	–	SSC	Open, dry habitats with little or no tree cover, including grasslands and saltbush scrub	None; no suitable habitat is present on or adjacent to the project site.
Giant gartersnake *Thamnophis gigas*	T	T	Open water and emergent vegetation in marshes, sloughs, and other aquatic habitats; also requires open upland habitat	None; no suitable habitat is present on or adjacent to the project site, which is outside the range of this species.
Northwestern pond turtle *Actinemys marmorata*	–	SSC	Permanent or nearly permanent water bodies; nests in sunny uplands near suitable aquatic habitat	None; canals adjacent to the project site are dry most of the year and do not provide suitable aquatic habitat.
Birds				
Western snowy plover *Charadrius alexandrinus nivosus*	T	–	Sandy beaches, salt pond levees, and shores of alkali lakes	None; no suitable habitat is present on or adjacent to the project site.
Burrowing owl *Athene cunicularia*	–	SSC	Nests and forages in grasslands, agricultural lands, and other open habitats with natural or artificial burrows or friable soils	Low; project site and adjacent row crops provide marginally suitable foraging habitat; suitable burrows could occur along field and canal margins if these areas are not regularly maintained.
Swainson's hawk *Buteo swainsoni*	–	T	Nests in riparian forest and scattered trees; forages in grasslands and agricultural fields	Low; project site and adjacent areas provide poor-quality foraging habitat, and the few large ornamental trees at agricultural yards adjacent to the site provide poor-quality nest sites; nesting pairs are scarce in Kern County, but an active nest is known from approximately 1.25 miles southwest of the project site.
Loggerhead shrike *Lanius ludovicianus*	–	SSC	Savannah, shrublands, and open woodlands with shrubs and small trees for nesting	Low; project site and adjacent areas provide poor-quality foraging habitat, and suitable nesting vegetation is absent.
Le Conte's thrasher *Toxostoma lecontei*	–	SSC	Dry, open scrub habitats with dense spiny vegetation	None; no suitable habitat is present on or adjacent to the project site.
Tricolored blackbird *Agelaius tricolor*	–	C	Nests in dense cattails and tules, riparian scrub, grain crops, and other low dense vegetation; forages in grasslands and agricultural fields	None; no suitable habitat is present on or adjacent to the project site.
Mammals				
Buena Vista Lake ornate shrew *Sorex ornatus relictus*	E	SSC	Moist soils in marsh and riparian habitat, with stumps, logs and litter for cover	None; no suitable habitat is present on or adjacent to the project site.

Species	Status		Habitat Associations	Potential to Occur on the Project Site
	Federal	State		
Tulare grasshopper mouse *Onychomys torridus tularensis*	–	SSC	Dry, open scrublands	None; no suitable habitat is present on or adjacent to the project site.
Giant kangaroo rat *Dipodomys ingens*	E	E	Dry grasslands and alkali scrub with sandy loam soils	None; no suitable habitat is present on or adjacent to the project site.
Tipton kangaroo rat *Dipodomys nitratoides*	E	E	Saltbrush and sink scrub vegetation with soft, friable soils	None; no suitable habitat is present on or adjacent to the project site.
Short-nosed kangaroo rat *Dipodomys nitratoides brevinasus*	–	SSC	Grassland and shrub habitats with friable alkali soils	None; no suitable habitat is present on or adjacent to the project site.
Nelson's antelope squirrel *Ammospermophilus nelsoni*	–	T	Grasslands and open shrubland with gullies and washes	None; no suitable habitat is present on or adjacent to the project site.
San Joaquin kit fox *Vulpes macrotis mutica*	E	T	Primarily grasslands and sparsely vegetated shrublands with loose-textured soils; can also use open agricultural habitats	Low; habitat on and adjacent to the project site is relatively poor-quality, but individuals could travel through the area in transit to more suitable habitat elsewhere. CNDDB includes a 2003 occurrence near the project site, but much of the habitat in this area has since been converted to orchard.
American badger *Taxidea taxus*	–	SSC	Dry, open areas in various habitats with friable soils and uncultivated ground	None; no suitable habitat is present on or adjacent to the project site.
Western mastiff bat *Eumops perotis californicus*	–	SSC	Various open, semi-arid to arid habitats; roosts in cliff crevices, high buildings, tunnels, and trees	Low; farm buildings adjacent to the project site provide poor-quality roost sites, though individuals from roosts elsewhere could occasionally forage in the vicinity.

Notes: CNDDB = California Natural Diversity Database

[1] **Status Definitions**

E = Listed as Endangered under the federal or state Endangered Species Act
T = Listed as Threatened under the federal or state Endangered Species Act
C = Candidate for listing as Threatened or Endangered under the Califonia Endangered Species Act
FP = Fully Protected under the California Fish and Game Code
SSC = California Species of Special Concern

Sources: CDFW 2019; GEI data 2019; USFWS 2019a

Three special-status bird species have low potential to occur on the project site: burrowing owl, Swainson's hawk, and loggerhead shrike. Large ornamental trees at the agricultural facility north of the project site provide poor-quality nest sites for Swainson's hawk. Kern County is at the south end of the Swainson's hawk breeding range, and the species occurs sparsely in this region (CDFG 2007). The CNDDB includes only 20 presumed extant active Swainson's hawk nests or nesting pairs documented since 1990 in all of Kern County. One of these locations is in saltbush scrub habitat approximately 1.25 miles southwest of the project site. Based on the scarcity of Swainson's hawks in the region and the very small number of potential nest trees, potential for

this species to nest adjacent to the project site is very low. In addition, the fallow project site and adjacent fields currently provide limited foraging opportunities; if alfalfa is grown in the adjacent fields, the foraging quality would be much higher, and Swainson's hawk would have higher potential to occur. Habitat for burrowing owl on and adjacent to the project site is currently poor, because these areas are regularly maintained and support very few burrows. If burrowing mammals become established or materials/debris that provides artificial burrows is stored on or adjacent to the site, potential for burrowing owls to use the area would increase. Loggerhead shrikes could occasionally forage on or adjacent to the project site, but no suitable nesting habitat is present.

Western mastiff bat is most likely to roost in hills west of the project site, though agricultural buildings adjacent to the site may provide marginally suitable artificial roost sites. If suitable roosts are available in the project vicinity, these bats could forage over the project site. The CNDDB includes many recent occurrences of San Joaquin kit fox in grassland and scrub in the project vicinity. Although kit foxes occur in a variety of habitats, including row crops, orchards, and vineyards, they prefer natural open habitats with loose-textured soils, and dens typically occur in open areas with grass or scattered brush (USFWS 1998, 2010). According to habitat suitability modeling conducted over the range of San Joaquin kit fox, large areas of high suitability are present south and west of the project site, but no medium or high suitability habitat is present on the project site (Cypher et al., 2013). No potential kit fox dens were observed during the field survey. Based on the current habitat conditions and observations made during the field surveys, potential for kit fox to occur on or near the project site is low, and kit fox dens are unlikely to be present. However, because the project site is near high suitability habitat, there is potential for foraging or transient individuals to occasionally pass through the project area.

2.3 Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through the California Environmental Quality Act, the Federal Endangered Species Act (ESA), Section 1602 of the California Fish and Game Code (FGC), Section 404 of the Federal Clean Water Act (CWA), and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act). Sensitive habitats may be of special concern for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat for special-status species.

2.3.1 Critical Habitat

Critical habitat is a geographic area containing features determined to be essential to the conservation of a species listed as threatened or endangered under the ESA. No designated or proposed critical habitat is present on or adjacent to the project site.

2.3.2 Aquatic Habitat

Under CWA Section 404, the U.S. Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into aquatic features that qualify as waters of the United States; wetlands

that support hydrophytic vegetation, hydric soil types, and wetland hydrology may also qualify for USACE jurisdiction under CWA Section 404. Under CWA Section 401, the Central Valley Regional Water Quality Control Board (RWQCB) regulates discharge of dredged or fill material into waters of the United States that drain to the Central Valley, to ensure such activities do not violate state or federal water quality standards; the Central Valley RWQCB also regulates waters of the State, in compliance with the Porter-Cologne Act. In addition, all diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources may be subject to the regulatory approval of CDFW pursuant to FGC Section 1602.

Because canals on the project site are used solely for irrigation delivery and do not have a significant nexus to traditionally navigable waters, they do not qualify as potentially jurisdictional waters of the United States and are not subject to regulation under CWA Sections 401 and 404. According to the District, the canals are not subject to FGC Section 1602 because they are not considered to be rivers or streams, and a waste discharge requirement is not needed from RWQCB because the project would not affect the quality of the waters of the State (Porter-Cologne Act Section 13260[1][1]).

2.3.3 Natural Communities of Special Concern

CDFW maintains a list of terrestrial natural communities that are native to California, the List of Vegetation Alliances and Associations (CDFG 2010). Within that list, CDFW identifies and ranks natural communities of special concern considered to be highly imperiled. The project site does not support any natural communities of special concern.

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3.0 Potential Impacts

Implementing the project would convert currently fallow, but regularly maintained, agricultural land that provides very little biological value. No natural habitat would be affected by any project activities, and no currently cultivated agricultural crops would be removed.

The impact discussions below focus on resources determined to have potential to be affected by implementing the project. Therefore, special-status species that do not have potential to occur on or near the project site (i.e., because suitable habitat is absent or the project site is outside the species' current range) are not addressed in these discussions; sensitive habitats, which do not occur on the project site, also are not discussed below.

3.1 Special-status Wildlife

Burrowing owl, Swainson's hawk, and loggerhead shrike have low potential to occur on the project site (*see* **Table 2**). These species are known to occur in the project vicinity, but the project site and adjacent areas currently provide poor-quality habitat for them. Depending on adjacent crops that are present during project implementation, these species' foraging behavior could be disturbed by project activities. However, because extensive areas of similar or higher-quality foraging habitat are present in the vicinity, such disturbance would be a minor impact. If occupied burrowing owl burrows become established onsite, they could be directly destroyed, and burrowing owls could be injured or killed by project activities. Potential for project activities to result in Swainson's hawk nest failure or abandonment of occupied burrowing owl burrows is very low, because the quality of potential nesting habitat is poor, the project area is subject to regular disturbance from agricultural activities, and project activities are anticipated to cause somewhat similar disturbance levels. However, in the unlikely event an active Swainson's hawk nest or occupied burrowing owl burrow is present very close to the project site, project activities could result nest/burrow abandonment, reduced care of eggs or young, or premature fledging. Recommended impact avoidance and minimization measures described below would reduce potential for impacts on these species.

Western mastiff bat has low potential to occur on or adjacent to the project site (*see* Table 2). Because potential bat roosting habitat in the project vicinity is limited to poor-quality artificial sites (e.g., agricultural structures), and project disturbance would be similar in intensity to agricultural activities, there would be no impacts to roosting bats. In addition, foraging activities of mastiff bats that may occasionally use the project site would not be disturbed by construction activities.

Based on current habitat conditions and observations made during the field surveys, potential for San Joaquin kit fox to den on or adjacent to the project site is very low. However, if a den becomes established or transient individuals are present during project implementation, the den could be

abandoned, or kit foxes could be injured or killed if they come in contact with project equipment or become trapped in pipes or trenches. Recommended impact avoidance and minimization measures described below would reduce potential for these impacts.

3.2 Other Potential Impacts on Biological Resources

The project site is part of a much larger extent of agricultural lands and does not serve as a corridor or other primary route for wildlife movement. Because the adjacent canals are dry for much of the year and do not connect to natural waterways, they do not provide migratory corridors. The project site also does not serve as a nursery site for any wildlife species. Therefore, implementing the proposed project would not interfere with the movement of any fish or wildlife species or impede the use of a nursery site.

The project site is within the area anticipated to be covered by the Kern County Valley Floor Habitat Conservation Plan. A draft of the plan was issued more than 10 years ago (Kern County Planning Department 2006), but a final plan has not been released. The project site is within an extensive area of "White Zone," which is of lower conservation concern and not identified for acquisition of preserve areas. Therefore, implementing the proposed project would not conflict with any provisions, guidelines, goals, or objectives anticipated to be included in a potential final and adopted version of this plan.

A low diversity of common birds that use agricultural habitats could nest in crops and ornamental vegetation adjacent to the project site. Nesting habitat also could become established onsite, if regular maintenance (i.e. disking) ceases and ruderal vegetation becomes established. If active nests are present on the project site, project activities could destroy these nests. Destruction of active nests of common species would not substantially reduce their abundance or cause any species to drop below self-sustaining levels, but it could violate FGC Section 3503. Recommended impact avoidance and minimization measures described below would reduce potential for destruction of active bird nests.

4.0 Avoidance and Minimization Measures

The best management practices (BMPs) and species-specific measures described below are recommended to avoid or minimize impacts on special-status wildlife and other biological resources that are protected under State and Federal laws and regulations.

- **BMP-1:** An Environmental Awareness Program will be presented to all project personnel working in the field before project activities begin. The program will be presented by a qualified biologist with knowledge of special-status wildlife that could occur on the project site. The program will address the following: biology and habitat needs; regulatory status and protection; measures required to reduce potential impacts during project construction; penalties for non-compliance; and benefits of compliance.

- **BMP-2:** Project activities will only occur during the day (between 30 minutes before sunrise and 30 minutes after sunset).

- **BMP-3:** Hazardous materials, fuels, lubricants, and solvents that spill accidentally during project-related activities will be cleaned up and removed from the project site as soon as possible, according to applicable Federal, State and local regulations.

- **BMP-4:** All excavated, steep-walled holes or trenches more than 2 feet deep will be covered with plywood or similar materials at the end of each work day. If the trenches cannot be closed, one or more escape ramps of no more than a 45-degree slope will be constructed of earthen-fill or created with wooden planks. All covered or uncovered excavations will be inspected, for the presence of listed species, at the beginning, middle, and end of each day. Before trenches are filled, they will be inspected for trapped animals. If at any time a trapped or injured animal is discovered, project activities in the immediate vicinity will stop, and escape ramps or structures will be installed immediately to allow the animal(s) to escape. If an animal is unable to escape voluntarily, a qualified biologist will be summoned.

- **BMP-5:** All construction pipes or similar structures with a diameter of 4 inches or greater that are stored on the ground at a construction site for one or more overnight periods will be thoroughly inspected for wildlife before the pipe is buried, capped, or otherwise used or moved in any way. Pipes laid in trenches overnight will be capped. If an animal is discovered inside a pipe, the pipe will not be moved, and the animal will be allowed to leave on its own volition. If the animal could be a Federally-listed species, a qualified biologist will be summoned to identify the species.

- **BMP-6:** All food-related trash items such as wrappers, cans, bottles or food scraps generated during project activities will be disposed of in closed containers and removed daily from the project site. No deliberate feeding of wildlife will be allowed.

- **BMP-7:** No domestic pets associated with project personnel will be permitted on the project site.

Implementing the following measures, consistent with the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011), would further avoid and/or minimize potential impacts on San Joaquin kit fox.

- **SJKF-1:** No more than 30 days before project activities begin, a qualified biologist will conduct a pre-construction survey to determine the potential for listed species to occur in the project area. If potential dens for San Joaquin kit fox are found, exclusion zones will be established and maintained, in accordance with the *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox* (USFWS 2011).

- **SJKF-2:** The District will designate a project representative as the contact for any employee or construction contractor who finds a dead, injured, or entrapped San Joaquin kit fox. If a San Joaquin kit fox is found dead, injured, or entrapped on a project site, the District contact will be notified immediately and will immediately relay the report to USFWS.

- **SJKF-3:** All sightings of San Joaquin kit fox in the project area will be reported to USFWS within 3 working days, and a record of the sightings will be submitted to the CNDDB.

Implementing the following measures, consistent with the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012), would avoid destruction of occupied burrowing owl burrows.

- **BUOW-1:** A take avoidance survey will be conducted within 14 days before project activities begin.

- **BUOW-2:** If any occupied burrows are observed, protective buffers will be established and implemented. A qualified biologist will monitor the occupied burrows during project activities to confirm effectiveness of the buffers. The size of the buffer will depend on type and intensity of project disturbance, presence of visual buffers, and other variables that could affect susceptibility of the owls to disturbance.

- **BUOW-3:** If it is not feasible to implement a buffer of adequate size and it is determined, in consultation with CDFW, that passive exclusion of owls from the project site is an appropriate means of minimizing impacts, an exclusion and relocation plan will be developed and implemented in coordination with CDFW. However, passive exclusion cannot be conducted during the breeding season (February 1–August 31), unless a qualified biologist verifies through noninvasive means that either (1) the birds have not begun egg laying or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Implementing the following measures would avoid loss of active Swainson's Hawk nests:

- **SWHA-1:** A qualified biologist will conduct surveys of potential Swainson's hawk nesting trees within 0.25 mile of the project site. To the extent practicable, depending on timing of project initiation, surveys will be conducted in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). At a minimum, a survey will be conducted within 14 days before beginning project activities that occur during the nesting season (April–August).

- **SWHA-2:** If an active nest is observed, a protective buffer will be established and implemented until the nest is no longer active. A qualified biologist will monitor the nest during project activities to confirm effectiveness of the buffer. The size of the buffer will depend on type and intensity of project disturbance, presence of visual buffers, and other variables that could affect susceptibility of the nest to disturbance.

Implementing the following measures would minimize potential for loss of active nests of other birds:

- **NEST-1:** A qualified biologist will conduct surveys of suitable nesting habitat that would be directly disturbed by project activities. Surveys will be conducted within 5 days before beginning project activities that occur near suitable nesting habitat during the nesting season (February-August).

- **NEST-2:** If any active nests are observed, protective buffers will be established and implemented until the nests are no longer active. A qualified biologist will monitor the nest during project activities to confirm effectiveness of the buffer. The size of the buffer will depend on type and intensity of project disturbance, presence of visual buffers, and other variables that could affect susceptibility of the nest to disturbance.

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5.0 References

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Appendix A – Special-status Species Query Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lost Hills (3511956) OR Semitropic (3511955) OR Wasco SW (3511954) OR Belridge (3511946) OR Lokern (3511945) OR Buttonwillow (3511944) OR Reward (3511936) OR West Elk Hills (3511935) OR East Elk Hills (3511934))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ammospermophilus nelsoni Nelson's antelope squirrel	AMAFB04040	None	Threatened	G2	S2S3	
Anniella alexanderae Temblor legless lizard	ARACC01030	None	None	G1	S1	SSC
Anniella sp. California legless lizard	ARACC01070	None	None	G3G4	S3S4	SSC
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Dipodomys ingens giant kangaroo rat	AMAFD03080	Endangered	Endangered	G1G2	S1S2	
Dipodomys nitratoides brevinasus short-nosed kangaroo rat	AMAFD03153	None	None	G3T1T2	S1S2	SSC
Dipodomys nitratoides nitratoides Tipton kangaroo rat	AMAFD03152	Endangered	Endangered	G3T1T2	S1S2	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S4	WL
Gambelia sila blunt-nosed leopard lizard	ARACF07010	Endangered	Endangered	G1	S1	FP
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Masticophis flagellum ruddocki San Joaquin coachwhip	ARADB21021	None	None	G5T2T3	S2?	SSC

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Onychomys torridus tularensis Tulare grasshopper mouse	AMAFF06021	None	None	G5T1T2	S1S2	SSC
Perognathus inornatus San Joaquin Pocket Mouse	AMAFD01060	None	None	G2G3	S2S3	
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Protodufourea zavortinki Zavortink's protodufourea bee	IIHYM77020	None	None	G1	S1	
Sorex ornatus relictus Buena Vista Lake ornate shrew	AMABA01102	Endangered	None	G5T1	S1	SSC
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Toxostoma lecontei Le Conte's thrasher	ABPBK06100	None	None	G4	S3	SSC
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 28

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lost Hills (3511956) OR Semitropic (3511955) OR Wasco SW (3511954) OR Belridge (3511946) OR Lokern (3511945) OR Buttonwillow (3511944) OR Reward (3511936) OR West Elk Hills (3511935) OR East Elk Hills (3511934))
 AND Taxonomic Group IS (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Astragalus hornii var. hornii Horn's milk-vetch	PDFAB0F421	None	None	G4G5T1T2	S1	1B.1
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex cordulata var. erecticaulis Earlimart orache	PDCHE042V0	None	None	G3T1	S1	1B.2
Atriplex coronata var. vallicola Lost Hills crownscale	PDCHE04250	None	None	G4T2	S2	1B.2
Atriplex minuscula lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Caulanthus californicus California jewelflower	PDBRA31010	Endangered	Endangered	G1	S1	1B.1
Caulanthus lemmonii Lemmon's jewelflower	PDBRA0M0E0	None	None	G3	S3	1B.2
Cirsium crassicaule slough thistle	PDAST2E0U0	None	None	G1	S1	1B.1
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Eremalche parryi ssp. kernensis Kern mallow	PDMAL0C031	Endangered	None	G3G4T3	S3	1B.2
Eriastrum hooveri Hoover's eriastrum	PDPLM03070	Delisted	None	G3	S3	4.2
Eriogonum temblorense Temblor buckwheat	PDPGN085P0	None	None	G2	S2	1B.2
Eschscholzia lemmonii ssp. kernensis Tejon poppy	PDPAP0A071	None	None	G5T2	S2	1B.1
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Layia heterotricha pale-yellow layia	PDAST5N070	None	None	G2	S2	1B.1
Layia munzii Munz's tidy-tips	PDAST5N0B0	None	None	G2	S2	1B.2
Madia radiata showy golden madia	PDAST650E0	None	None	G3	S3	1B.1
Monolopia congdonii San Joaquin woollythreads	PDASTA8010	Endangered	None	G2	S2	1B.2
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Stylocline citroleum oil neststraw	PDAST8Y070	None	None	G3	S3	1B.1

Record Count: 21

CNPS California Native Plant Society

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

25 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3511956, 3511955, 3511954, 3511946, 3511945, 3511944, 3511936 3511935 and 3511934;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus hornii var. hornii	Horn's milk-vetch	Fabaceae	annual herb	May-Oct	1B.1	S1	G4G5T1T2
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex cordulata var. erecticaulis	Earlimart orache	Chenopodiaceae	annual herb	Aug-Sep(Nov)	1B.2	S1	G3T1
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	Mar-Oct	4.2	S3	G4T3
Atriplex coronata var. vallicola	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	1B.2	S2	G4T2
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	1B.1	S2	G2
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	Jun,Aug,Sep(Oct)	1B.2	S1	G1
Canbya candida	white pygmy-poppy	Papaveraceae	annual herb	Mar-Jun	4.2	S3S4	G3G4
Caulanthus californicus	California jewelflower	Brassicaceae	annual herb	Feb-May	1B.1	S1	G1
Cirsium crassicaule	slough thistle	Asteraceae	annual / perennial herb	May-Aug	1B.1	S1	G1
Clarkia xantiana ssp. parviflora	Kern Canyon clarkia	Onagraceae	annual herb	May-Jun	4.2	S3?	G4T3?
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Eremalche parryi ssp. kernensis	Kern mallow	Malvaceae	annual herb	Jan,Mar,Apr,May(Feb)	1B.2	S3	G3G4T3
Eriastrum hooveri	Hoover's eriastrum	Polemoniaceae	annual herb	(Feb)Mar-Jul	4.2	S3	G3
Eriogonum gossypinum	cottony buckwheat	Polygonaceae	annual herb	Mar-Sep	4.2	S3S4	G3G4

Eriogonum temblorense	Temblor buckwheat	Polygonaceae	annual herb	(Apr)May-Sep	1B.2	S2	G2
Eschscholzia lemmonii ssp. kernensis	Tejon poppy	Papaveraceae	annual herb	(Feb)Mar-May	1B.1	S2	G5T2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
Layia heterotricha	pale-yellow layia	Asteraceae	annual herb	Mar-Jun	1B.1	S2	G2
Layia munzii	Munz's tidy-tips	Asteraceae	annual herb	Mar-Apr	1B.2	S2	G2
Madia radiata	showy golden madia	Asteraceae	annual herb	Mar-May	1B.1	S3	G3
Monolopia congdonii	San Joaquin woollythreads	Asteraceae	annual herb	(Jan)Feb-May	1B.2	S2	G2
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Stylocline citroleum	oil neststraw	Asteraceae	annual herb	Mar-Apr	1B.1	S3	G3
Trichostema ovatum	San Joaquin bluecurls	Lamiaceae	annual herb	Jul-Oct	4.2	S3	G3

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 18 November 2019].

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IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

NOT FOR CONSULTATION

Project information

NAME

Corn Camp Groundwater Recharge Pond

LOCATION

Kern County, California



DESCRIPTION

The project would construct an approximately 50-acre groundwater recharge pond on existing agricultural land.

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600

(916) 414-6713

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

NOT FOR CONSULTATION

Endangered species

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

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

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

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

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

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

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

NOT FOR CONSULTATION

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

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

Mammals

NAME	STATUS

Buena Vista Lake Ornate Shrew Sorex ornatus relictus — Endangered
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/1610

Giant Kangaroo Rat Dipodomys ingens — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6051

San Joaquin Kit Fox Vulpes macrotis mutica — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2873

Tipton Kangaroo Rat Dipodomys nitratoides nitratoides — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7247

Reptiles

NAME	STATUS

Blunt-nosed Leopard Lizard Gambelia silus — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/625

Giant Garter Snake Thamnophis gigas — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4482

Amphibians

NAME	STATUS

California Red-legged Frog Rana draytonii — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2891

Fishes

NAME	STATUS

Delta Smelt Hypomesus transpacificus — Threatened
There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/321

Crustaceans

NOT FOR CONSULTATION

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Kern Mallow Eremalche kernensis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1731	Endangered
San Joaquin Wooly-threads Monolopia (=Lembertia) congdonii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3746	Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

NOT FOR CONSULTATION

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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

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

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

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

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

NOT FOR CONSULTATION

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Long-billed Curlew Numenius americanus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds elsewhere

Probability of Presence Summary

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

Probability of Presence (■)

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

to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

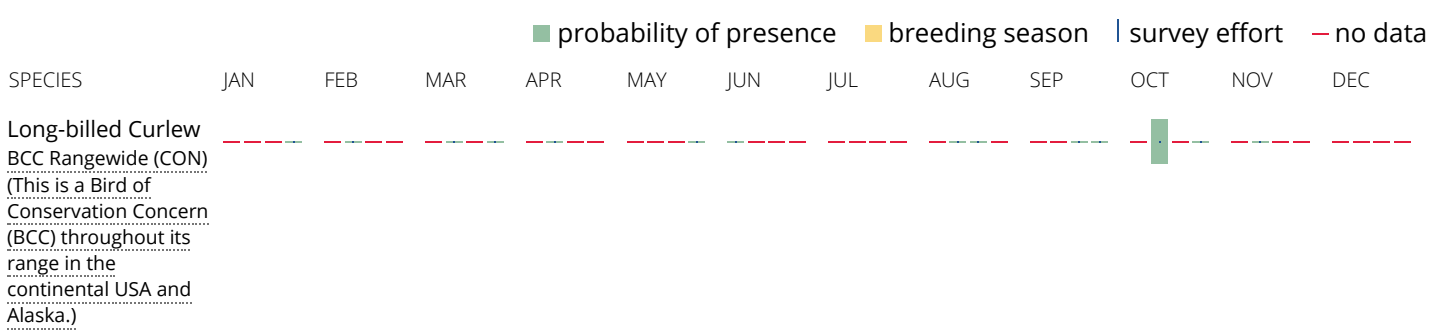
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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

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

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

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

NOT FOR CONSULTATION

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

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

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

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

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

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

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

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

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Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

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

This location overlaps the following wetlands:

RIVERINE

R4SBCx

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

Data limitations

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

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

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

Data exclusions

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

NOT FOR CONSULTATION

Data precautions

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

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Appendix B – Photographs of Project Site



Facing south from northwest corner of project site.



Facing south from northeast corner of project site.



Facing east from southwest corner of project site.



Facing west from southeast corner of project site.

Appendix C – Assessment of Potential Groundwater Impacts

Assessment of Potential Groundwater Impacts

Corn Camp Groundwater Recharge Project

Prepared for:
Buena Vista Water Storage District

Date: April 2020
Project Number: 1904697

David Miller
Principal Engineer

Ginger Gillin
Vice President

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1. Introduction

The Buena Vista Water Storage District (BVWSD, District) is planning to develop the Corn Camp Groundwater Recharge Project (Project), a project that will cover a total area of approximately 80 acres, including 50 acres of active recharge surface. The Project is located on T29S R23E Section 16 (APN: 100-170-01-8) in the central portion of the District's Buttonwillow Service Area. Construction activity will consist of excavation of soil to expose permeable material and construction of berms to pond water over this material.

The Project will enable the District to better sustain groundwater levels and improve groundwater quality, two objectives of California's Sustainable Groundwater Management Act (SGMA). High quality water recharged by the Project will flow to aquifers that support a range of uses and are sources for domestic and municipal wells serving the disadvantaged community (DAC) of Buttonwillow, which is 2.5 miles east of the site.

The land where the Project will be located is registered as having an irrigated land use with an agricultural preserve designation (Kern County Assessor, 2019), and the parcel has an established history of irrigated crop production. Retiring these lands from irrigated agriculture will enable water to be delivered to the area based on availability of water for recharge rather than in response to crop demands. In addition to the change in timing of deliveries, water that is now consumed by crops will be recharged and made available at other locations and for other purposes that will benefit groundwater management in the Kern County Subbasin. While cessation of irrigation deliveries will eliminate deep percolation of irrigation water, the intentional recharge of high-quality water will more than compensate for the reduction in deep percolation and will reduce leaching of nitrates, salts and other contaminants. All activity, including storage of construction materials and staging of equipment, will take place within the 80-acre parcel.

1.1 Project Location

BVWSD is located in the Kern County Groundwater Subbasin about 16 miles west of Bakersfield along the western edge of the southern San Joaquin Valley as shown on **Figure 1.** The District lies entirely in Kern County and covers about 78.3 square miles in two distinct service areas: the Buttonwillow Service Area (BSA) and the smaller Maples Service Area (MSA) which lies about 10 miles south of the BSA. The Project is sited in the BSA at the corner of Corn Camp Road and Sullivan Road, east of the West Side Canal and the Kern River Flood Channel, as shown on **Figure 2.**

1.2 Hydrologic Setting

The San Joaquin Valley, forming the southern two-thirds of the Central Valley, is a broad structural trough bordered on the east by the Sierra Nevada Mountains and on the west by the Diablo and the Temblor ranges. The valley extends 220 miles southeastward from the confluence of the San Joaquin and the Sacramento rivers to the Tehachapi and the San Emigdio mountains. The width of the valley ranges from 25 miles in the northern portion to 55 miles in the south (Croft, 1972). The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern rivers that flow into the Tulare drainage basin, which includes the beds of the former Tulare, Buena Vista, and Kern lakes.

BVWSD is located near the western edge of the Kern County Groundwater Subbasin (DWR, 2003). The subbasin is bounded on the north by the Kern County line and the Pleasant Valley, Tulare Lake, and Tule groundwater subbasins, on the east and southeast by the Sierra Nevada foothills and Tehachapi Mountains, and on the west and southwest by the San Emigdio Mountains and the Temblor Range. The Kern River is an important source of water for the BVWSD with the BSA located north of the river and the MSA to river's south. **Figure 1** shows the boundaries of the groundwater subbasin.

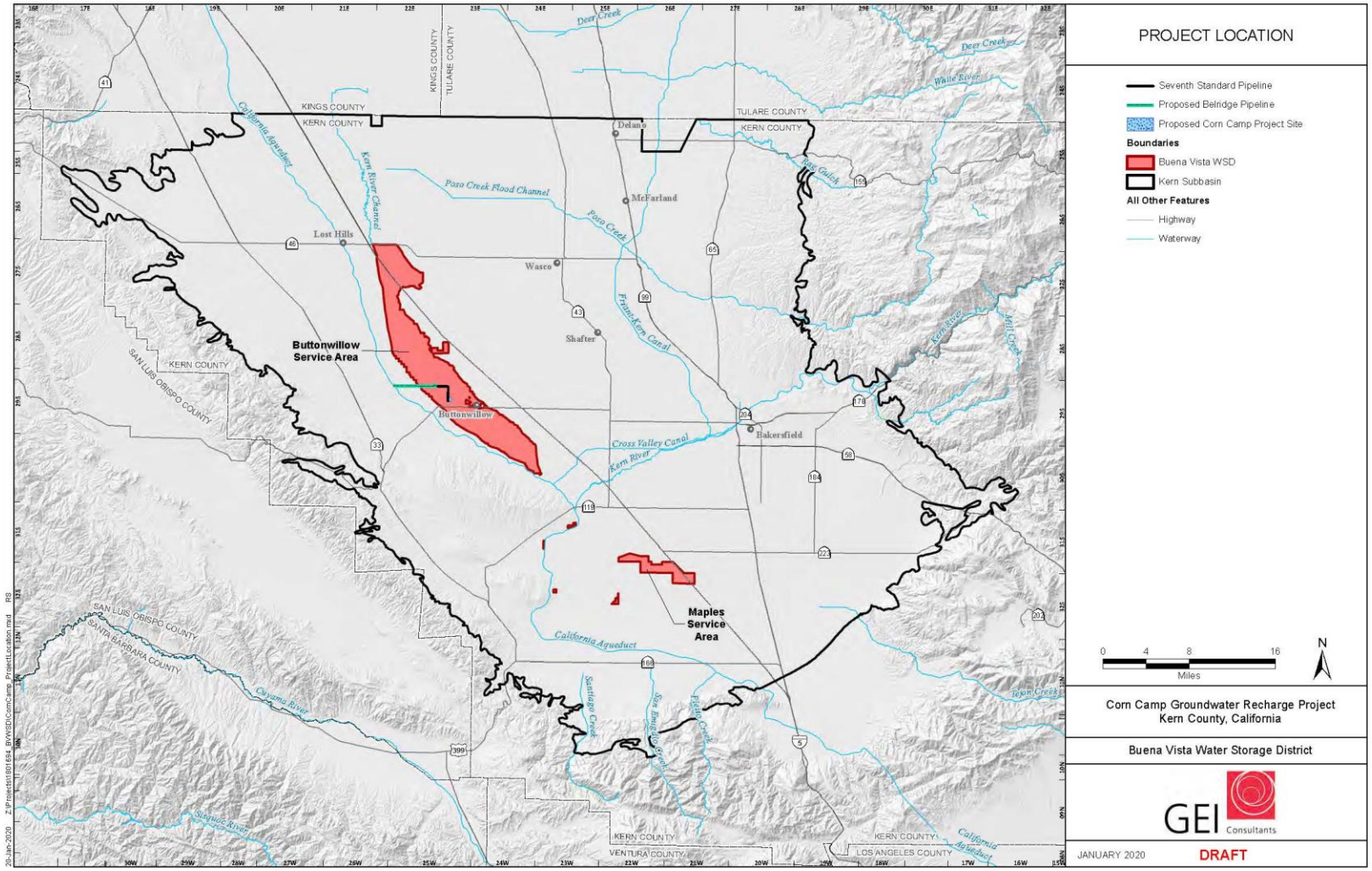


Figure 1 - Project Location Map

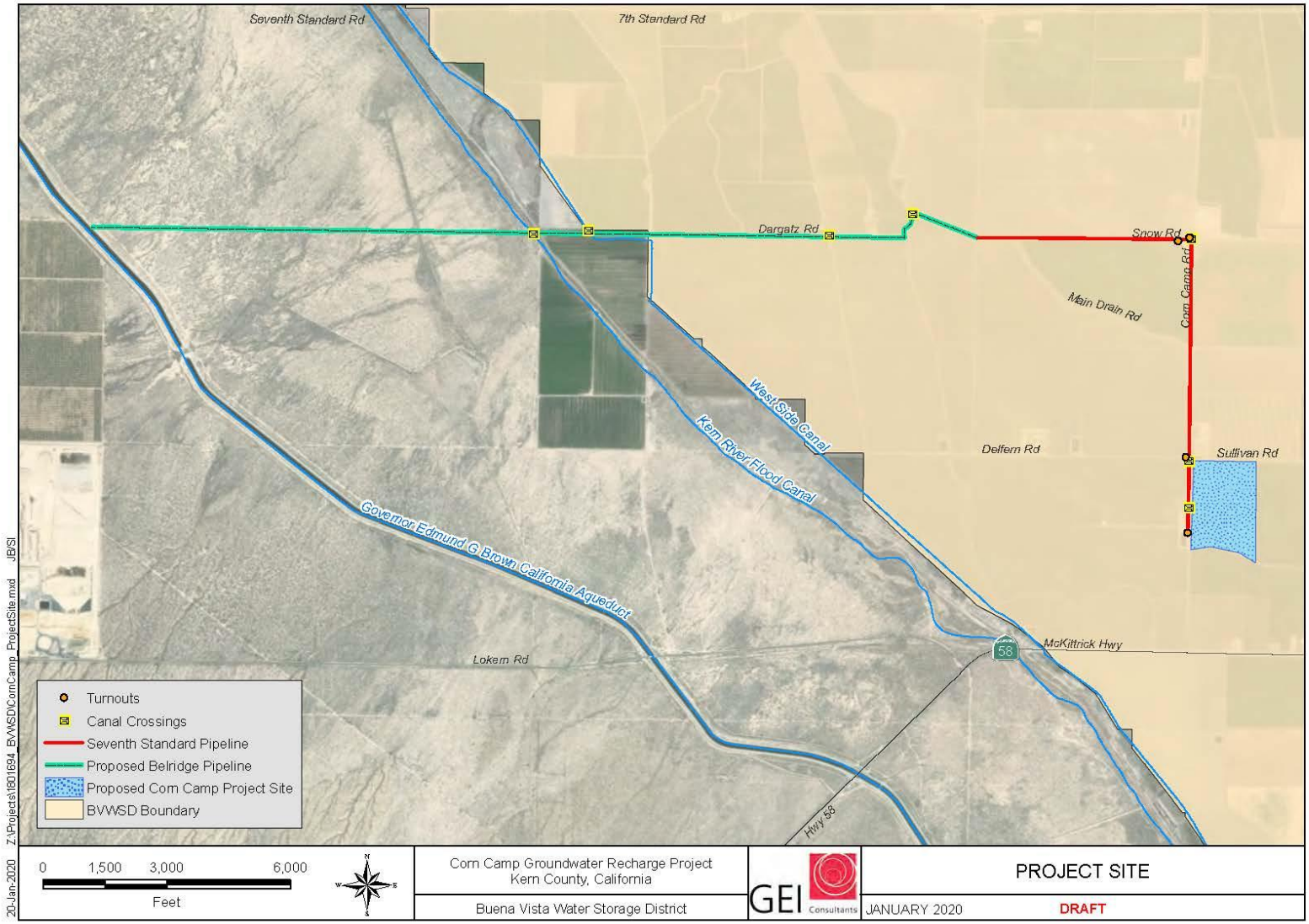


Figure 2 – Project Site Map

2. Geologic Conditions

The San Joaquin Valley is a structural trough filled to a depth of up to 32,000 feet with marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains. Continental deposits shed from these mountains form an alluvial wedge that thickens from the valley margins toward the axis of the valley's structural trough. This depositional axis lies directly beneath to slightly west of the series of rivers, lakes, sloughs, and marshes, which mark the current and historic axis of surface drainage in the San Joaquin Valley and define the north/south alignment of the Buttonwillow Service Area.

2.1 Regional Geology

The southern part of the San Joaquin Valley is a broad structural trough of mostly interior drainage. The Sierra Nevada on the east is composed of consolidated igneous and metamorphic rocks of pre-Tertiary age (basement complex). The surface of the basement complex slopes 4 to 6 degrees south-westward from the foothills and underlies the valley. The Coast Ranges on the west consist mostly of complexly folded and faulted consolidated marine and non-marine sedimentary rocks of Jurassic, Cretaceous, and Tertiary age. These non-water-bearing deposits dip eastward and overlie the basement complex (Croft, 1972).

Unconsolidated deposits of Late Pliocene to Holocene age blanket the underlying consolidated rocks are the source of most of the fresh groundwater. The unconsolidated deposits are divided into informal stratigraphic units on the basis of source of sediment, environment of deposition, and texture (Croft, 1972).

The unconsolidated sediments that comprise the shallow- to intermediate-depth water-bearing deposits are primarily of continental origin. From youngest to oldest (shallowest to deepest) the informal stratigraphic units consist of flood basin deposits, continental rocks and deposits, and marine rocks and deposits. Figure 3 shows the regional geology (Page, 1986).

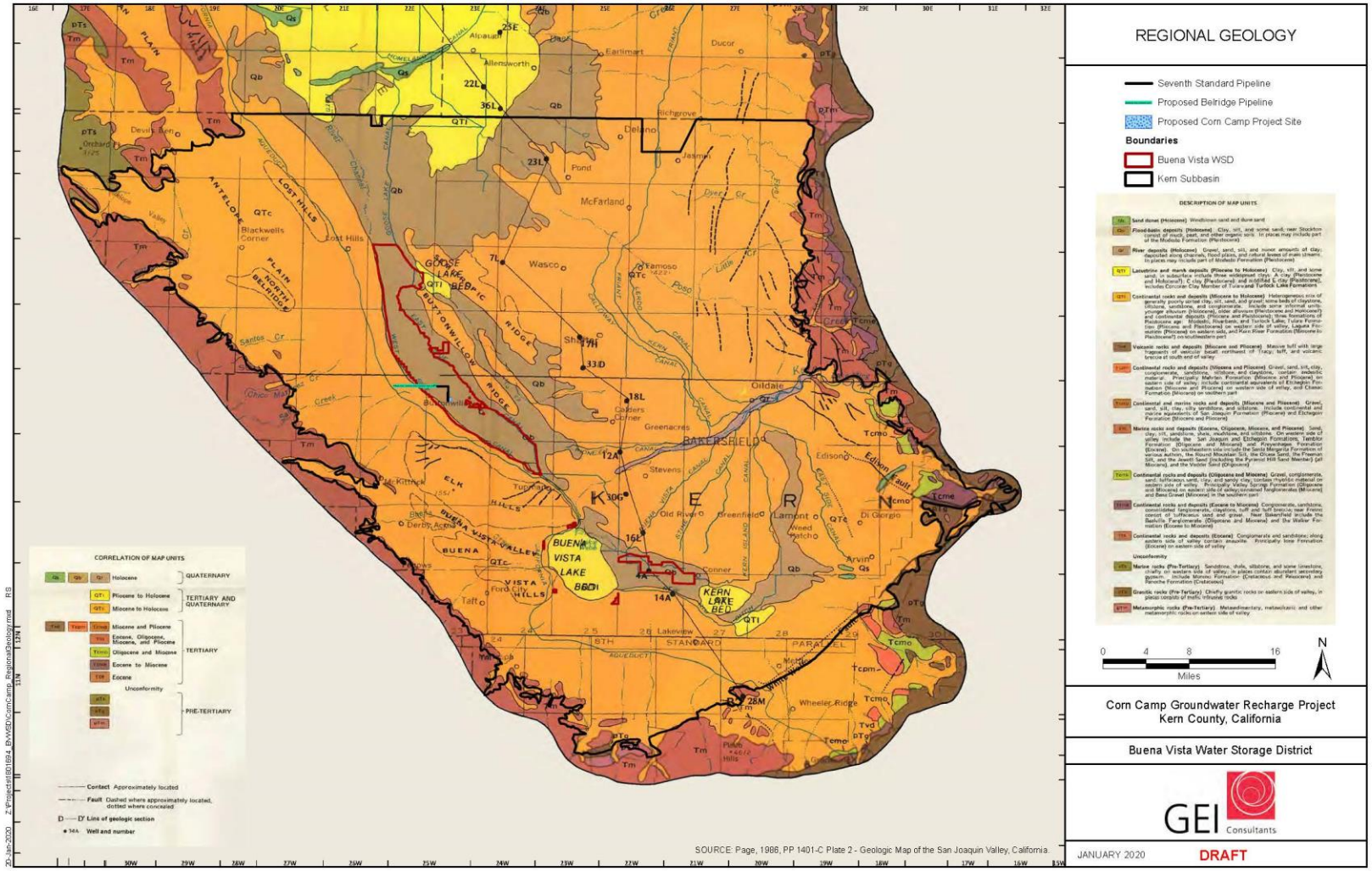


Figure 3 - Regional Geology

The continental rocks and flood basin deposits in the San Joaquin Valley groundwater basin contain six distinct clay layers, given letter designations A through F, from shallowest to deepest. All 6 clay layers are present beneath the center of the former Tulare Lake, and each has a unique lateral extent. The E-clay (also known as the Corcoran Clay) has the greatest lateral extent and has been documented to be present beneath BVWSD. The C-Clay occurs in the northern part of the District but does not extend to the location of the Corn Camp Project. The A-Clay is also present in the northern part of the District, causing perched groundwater, but does not extend as far south as the Project. **Figure 4** shows the alignment of the north-south geologic cross-section G-G', and **Figure 5** presents this cross-section, which shows the extent, depth and thickness of the clay layers beneath the BSA and the Project site (Croft, 1972).

2.2 Geologic Structures

The sediments found in the Kem County groundwater subbasin were deposited into a large trough that has since been compressed and subsided, resulting in the sediments being folded into troughs and ridges, known in geologic terms as synclines and anticlines. The most prominent anticlines are the Bakersfield Arch and the Buttonwillow and Semitropic ridges. The Buttonwillow and Semitropic ridges are surface expressions of two prominent north-south trending anticlines which could potentially be barriers to groundwater flow to the east. Figure 3 shows their locations. The intervening topographic troughs are the surface expressions of prominent synclines (Croft, 1968). The synclines typically contain a significantly thicker sequence of young sediments than do the anticlines (Pacific, 1991). Associated with the Buttonwillow and Semitropic anticlines are two concealed faults (CGS, 1991) that dip to the west. The faults are not active and do not extend to the ground surface.

There are varying interpretations of the extent of the E-clay in relation to the above described geologic structures. Reports prepared in 1972 and in 1991 show the E-clay to be continuous across the Buttonwillow and Semitropic ridges and their associated anticlines (Croft, 1972; Pacific, 1991). However, work by the United States Geologic Survey (USGS), which was used to prepare the Central Valley Hydrologic Model (CVHM) groundwater model, shows the E-clay is not continuous over this area. **Figure 6** shows the extent and depth of the modified E-clay and the contours of the top of the clay bed. It is possible the anticlines of the Buttonwillow and Semitropic ridges predate the E-clay and therefore the clay was not deposited onto these ridges. If this were the case, sedimentary beds on the east and west sides of the ridges would not be continuous unless they were deposited between the ridges.

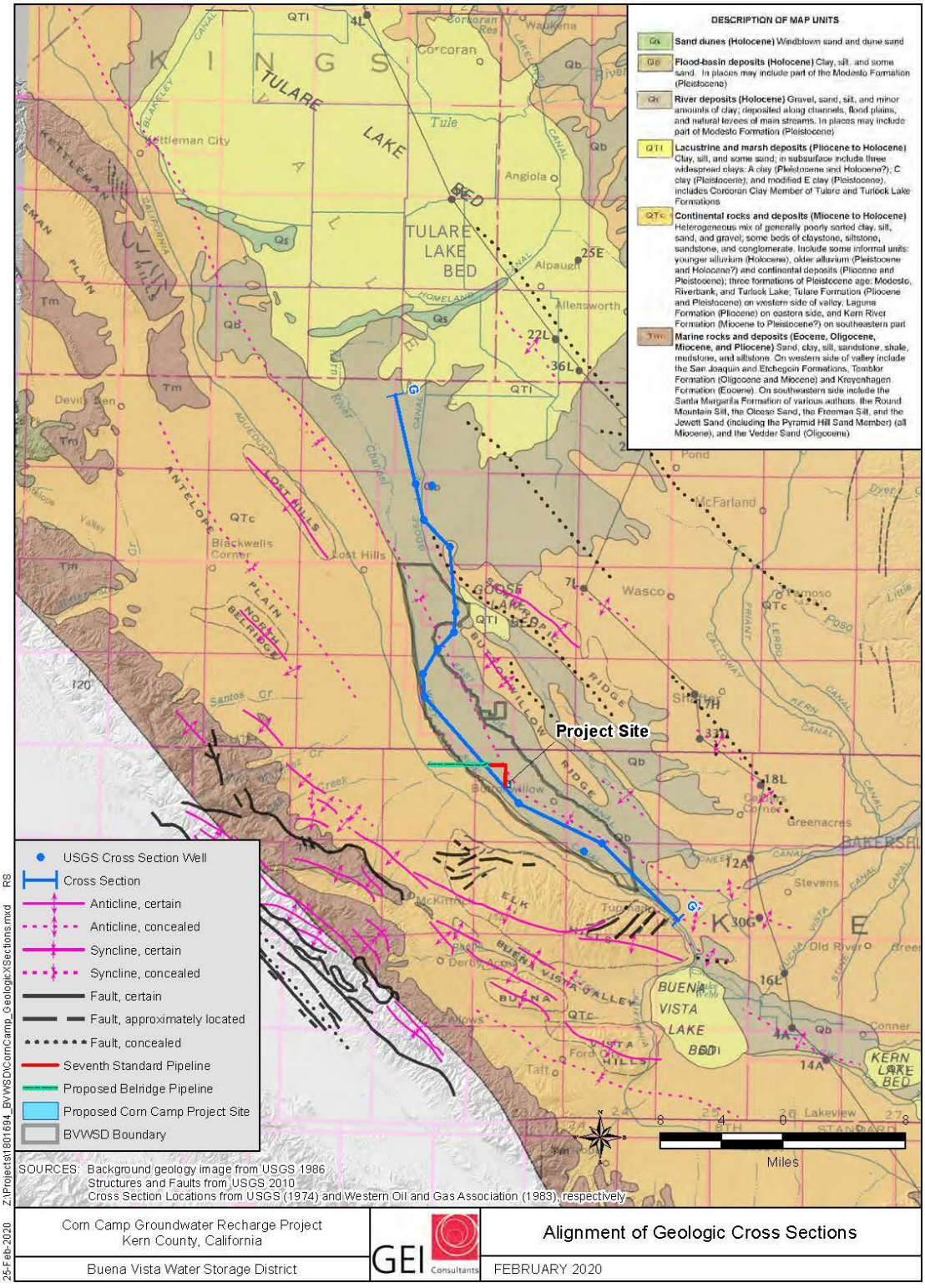


Figure 4 – Alignment of Geologic Cross-Sections

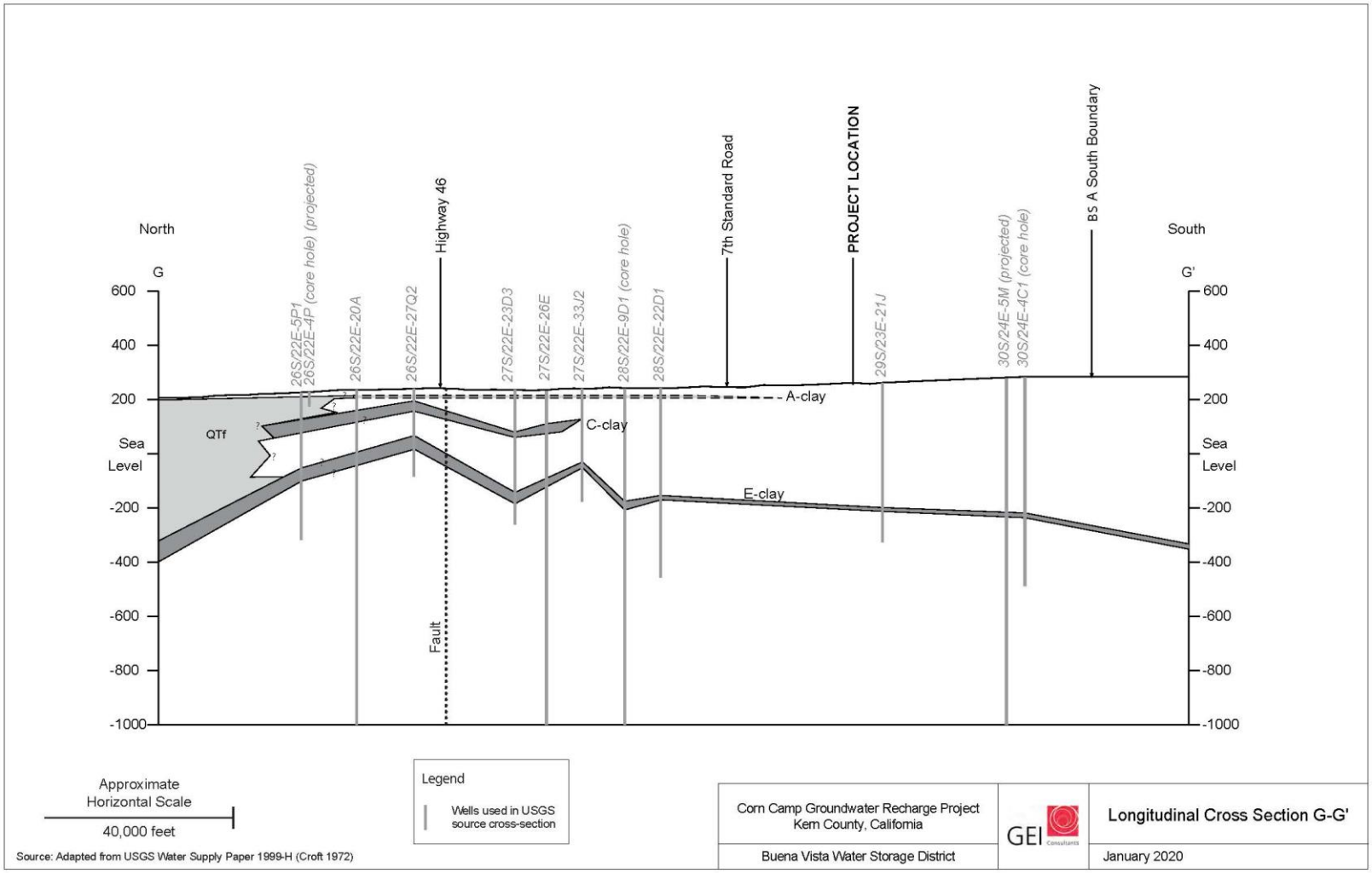


Figure 5 – Geologic Cross Section G-G'

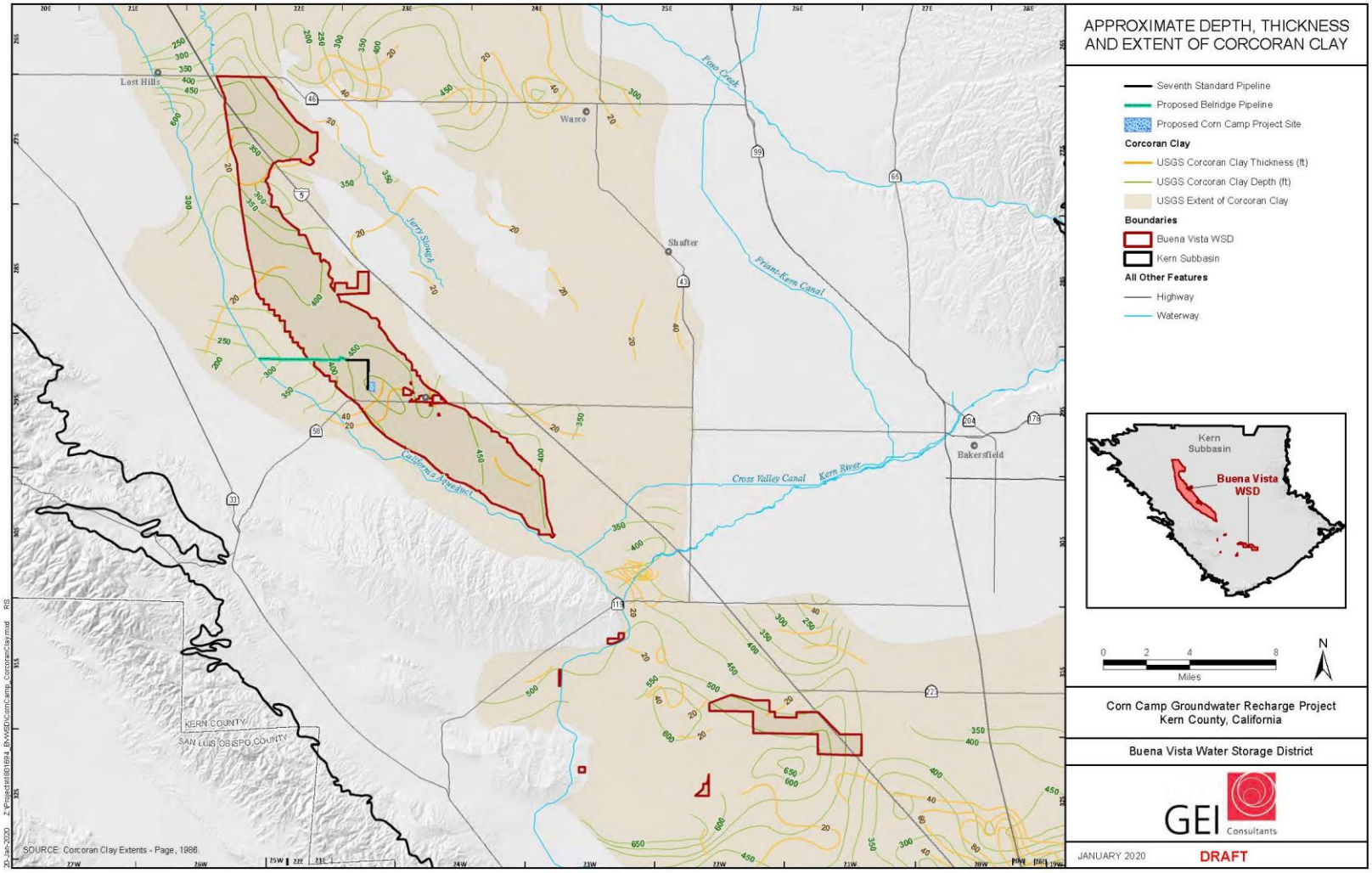


Figure 6 – Approximate Depth, Thickness and Extent of E-Clay

2.3 Local Soils and Geology

The National Resources Conservation Service (NRCS) produces soils maps which indicate the type of surface soils present in the top few feet of the subsurface as part of its Soil Survey Geographic Database (SSURGO) dataset. One of the properties that the NRCS designates is the hydrologic soils group (HSG) which indicates the rate at which water will percolate through the surface soils. **Figure 7** shows the HSGs for the vicinity of the Corn Camp Project and illustrates that the entire Project area has been designated as "HSG C" or having a moderately low infiltration potential. NRCS documentation shows that HSG C soils have a saturated hydraulic conductivity of between 0.14 and 1.42 inches per hour.

Beneath the low permeability surficial soils are sands that transmit water at a higher rate than the overlying soils. Appendix A includes Well Completion Reports (WCRs) from four wells within a two-mile radius of the Corn Camp Project. The locations of these wells are shown on **Figure 8**. The sediment logs presented in these reports show sands interspersed with clay lenses extending to depths exceeding 400 feet. As indicated in these logs, drilling is generally halted when the boring reaches a clay layer, interpreted to be the modified E-clay, which is a regional confining stratigraphic unit and is assumed to define the base of the main aquifer. Typically wells drilled in the District do not extend beyond the E-clay as water drawn from below this layer is characterized by high TDS concentrations. In addition, pumping from beneath the E-clay is discouraged by the Buena Vista Groundwater Sustainability Agency (BVGSA) because of the possibility that extraction from the confined aquifer may induce subsidence. Water infiltrated at the Corn Camp Project is expected to recharge aquifer zones above the E-clay since this confining layer extends throughout the project area as shown on **Figure 6.**

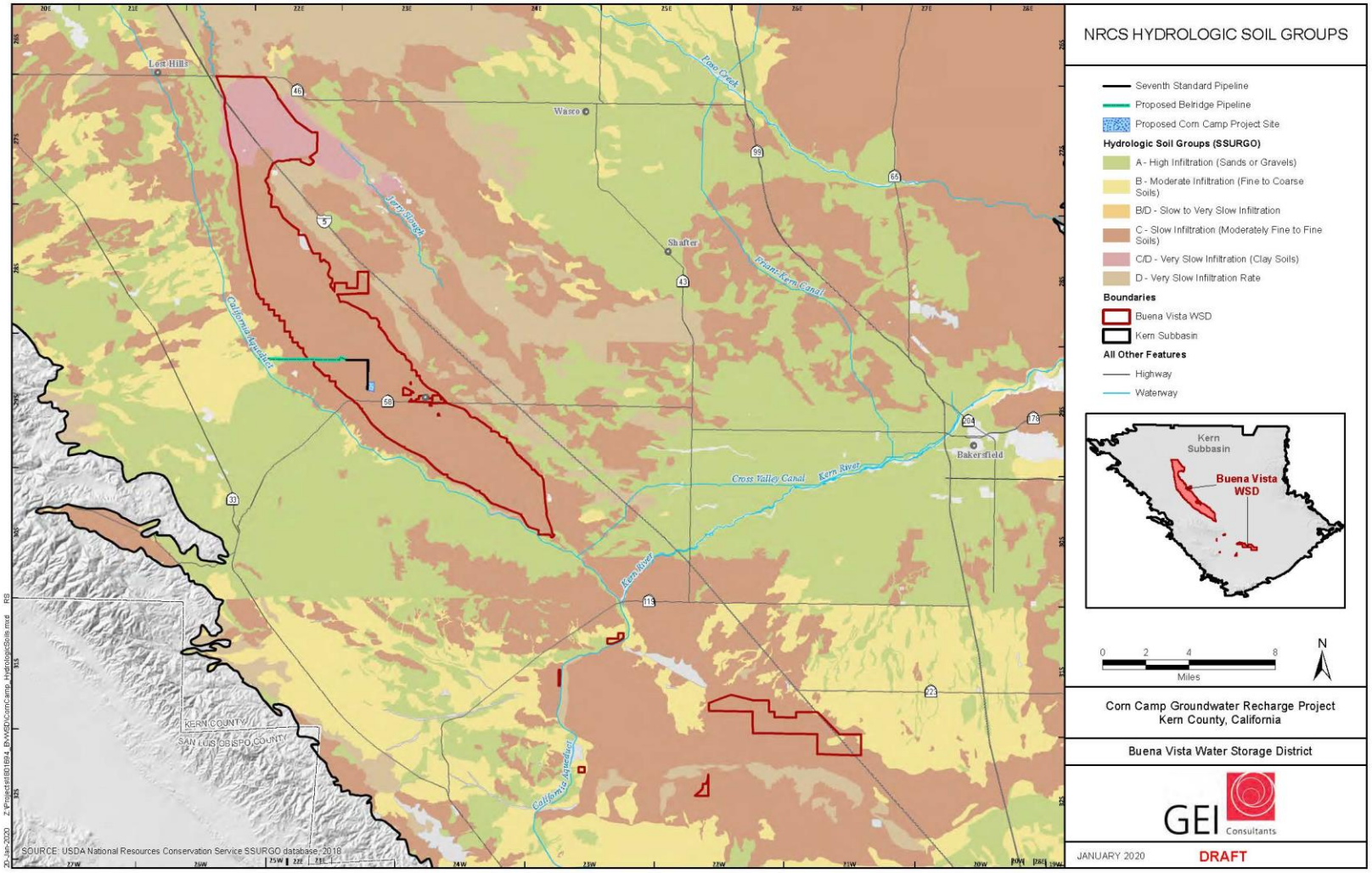


Figure 7 - Hydrologic Soils Groups

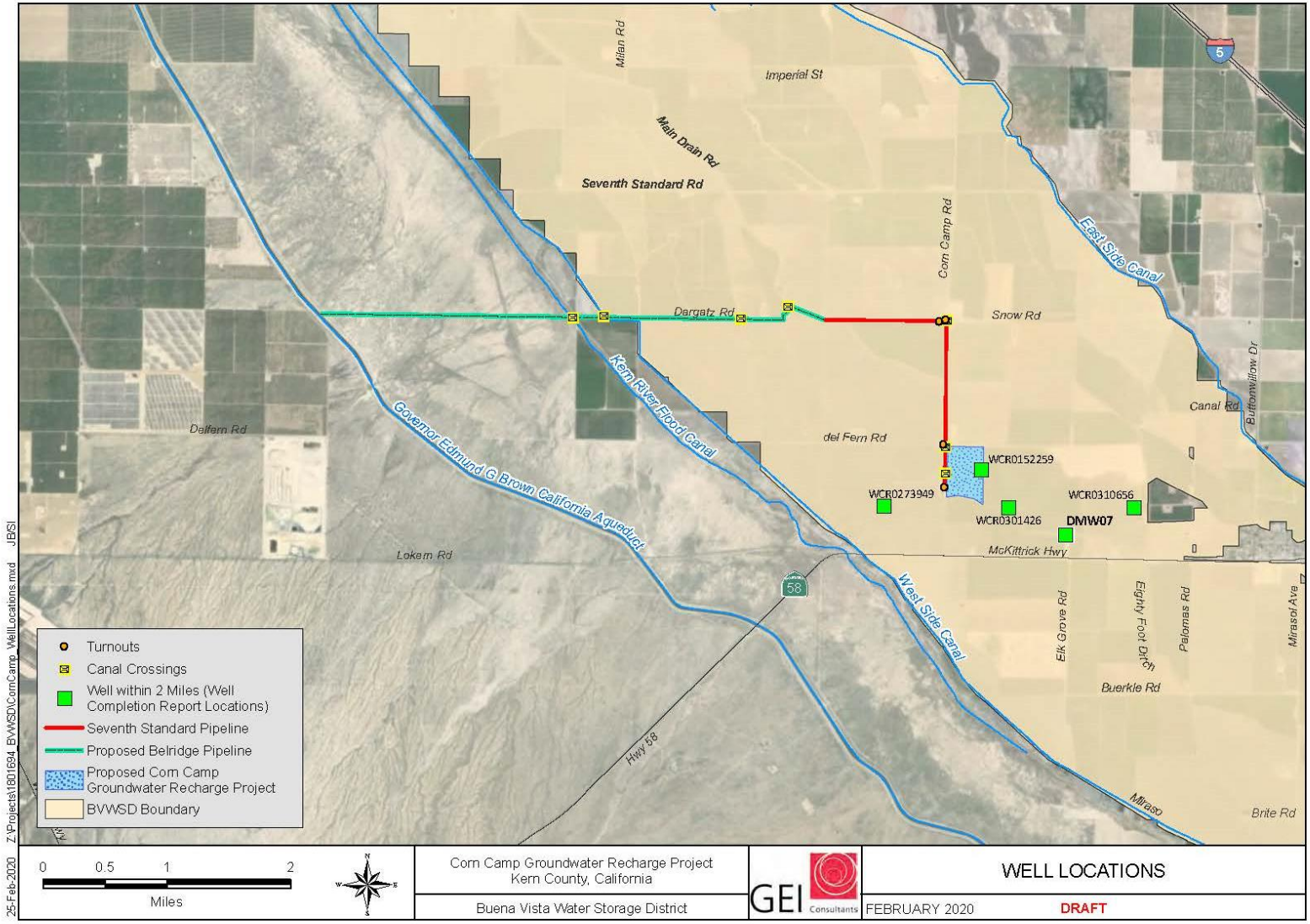


Figure 8 – Locations of Wells with WCRs Presented in Appendices A and B

3. Hydrogeologic Conditions

This section describes existing hydrogeologic data collected in the vicinity of the Corn Camp Project and provides a summary of aquifer properties that govern groundwater movement.

3.1 Aquifers

The majority of irrigation wells in the District are completed to depths between 200 and 500 feet with perforated intervals beginning at around 150 feet and extending to the bottom (BVWSD, 2014). As illustrated by the WCRs presented in **Appendix A**, wells drilled in the vicinity of the Corn Camp Project appear to have been completed in this manner.

The main groundwater aquifer under the Corn Camp Project extends from the ground surface to the top of the modified E-clay, found at a depth of approximately 480 feet. As shown in the WCRs presented in **Appendix A**, the top portion of the aquifer (about 150 feet below ground surface [bgs]) has primarily zones of clean sand interspersed with zones characterized by interbedded sand and silt with some clay.

3.2 Confining Beds

The E-clay is known regionally to be a low permeability barrier to vertical groundwater flow, but it is not completely impermeable. The top of the clay layer is about 480 feet bgs under the Corn Camp Project area. Water-bearing units below the modified E-clay are typically not used by BVWSD as they contain poor quality water due to recharge from marine sediments of the Coast Ranges.

3.3 Groundwater Levels

District Monitoring Well 7 (DMW 07) is near the Corn Camp Project, and BVWSD has recorded groundwater elevations at this well four times per year since about 1993. **Figure 8** shows the location of this well, and **Appendix B** presents a hydrograph showing groundwater elevations at this location. Depths to groundwater between 1995 and 2018 have ranged from 20 to 126 feet bgs.

3.4 Groundwater Flow Direction

Figures 9 and 10 were produced by BVWSD and show regional groundwater level and elevation contours for October 2018 in feet bgs and in feet above sea level (respectively). Both maps illustrate how water recharge at the project site would flow in a southeasterly direction through the Community of Buttonwillow and toward groundwater extraction facilities being developed in the southeastern corner of the BSA for the Palms Project, a groundwater recharge project now under consideration by the BVWSD near the district's southern boundary.

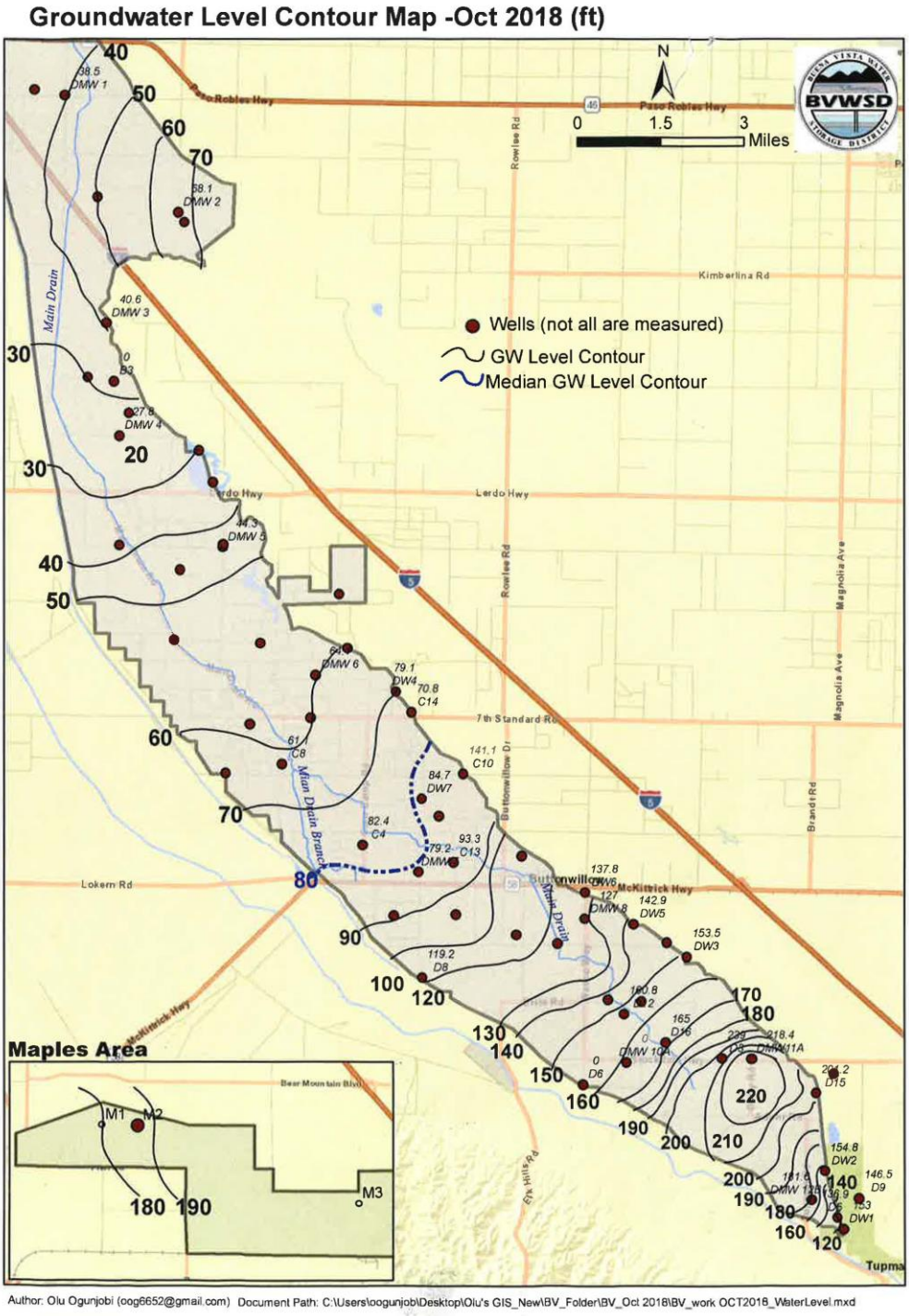
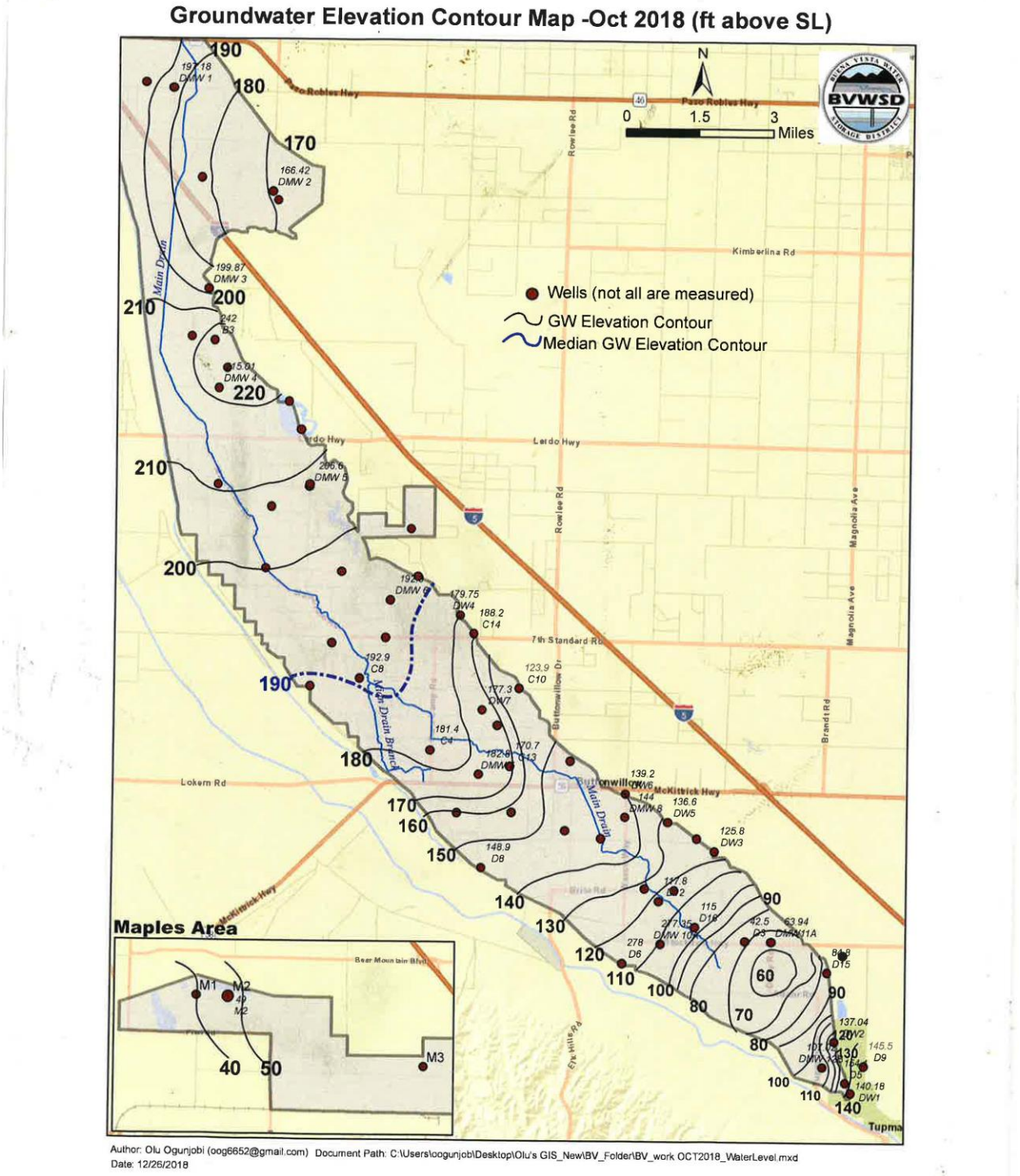


Figure 9 - Regional Groundwater Level Contours (in Feet Below Ground Surface) – October 2018



Author: Olu Ogunjobi (oog6652@gmail.com) Document Path: C:\Users\oogunjob\Desktop\Olu's GIS_New\BV_Folder\BV_work OCT2018_WaterLevel.mxd
Date: 12/26/2018

Figure 10 – Regional Groundwater Elevation Contours (in Feet Above Sea Level) – October 2018

3.5 Aquifer Hydraulic Characteristics

The hydraulic characteristics of the production aquifer govern the rate at which water will recharge and move through the aquifer. Hydraulic characteristics can be estimated based on the type of aquifer material. However, a more reliable method is to perform an aquifer test where a well is pumped and changes in groundwater elevations are measured at the test location and ideally in other nearby wells.

The nearest known tests were performed by the consulting firm URS at seven locations within 1.2 miles of the intersection of Seventh Standard Rd and Main Drain Rd (T29 N or S?/R23E-section 04) (URS, 2010). Due to the proximity to these wells to the Corn Camp Project, the results of the URS testing program have been used to represent the aquifer characteristics of the Project.

To summarize the URS findings, the deep aquifer is defined as extending from 200 ft bgs to 600 ft bgs. The seven irrigation wells used in the testing program have completion intervals ranging from 100 feet to 300 feet within this depth range. Based on the results of the pump tests, aquifer transmissivity was estimated to range from 15,000 to 25,000 ft^2/d, with an average aquifer transmissivity of 18,200 +/- 4,400 ft^2/day. Using the aquifer net sand thickness from the E-logs of the tested wells, hydraulic conductivities were estimated to range from 30 to 80 ft/day, with an average K-value of 77 +/- 31 ft/day.

Due to the presence of the interbedded silt and clay layers shown in the WCRs presented in Appendix A, the overall vertical permeability is assumed to be much lower than the average horizontal K-value with the long-term rate of infiltration from the recharge ponds likely to be further reduced by fine, suspended sediments introduced in the water delivered for recharge. For these reasons, an infiltration rate of 1.5 ft/day has been assumed for this Project. This value corresponds to the mid-point of the infiltration rate associated with HSG C soils.

Regional specific yield estimates made by the USGS for the San Joaquin Valley have an average value of 0.15, a value consistent with estimates made by the California Energy Commission (URS, 2012). Based on these estimates, a specific yield range of from 0.10 to 0.20 has been assumed for this analysis, the range assumed in analyses presented in the Buena Vista Groundwater Sustainability Agency's Groundwater Sustainability Plan (GSP). This GSP can be found on Buena Vista Water Storage District's website (BVWSD, 2020).

3.6 Sources of Water for Recharge

Surface water available to BVWSD for use in the Corn Camp Project will include water from the Kern River diverted under the BVWSD's rights to Kern River water available at the Second Point of Measurement on the river commonly referred to as Second Point.

A second source of recharge water is BVWSD's contract with the Kern County Water Agency (KCWA) for State Water Project (SWP) water, which is delivered to the District through

turnouts from the California Aqueduct. In addition to its contract entitlement, so-called SWP Article 21 water is available from time to time under this contract, typically early in the year when irrigation demands are relatively low. BVWSD has the right to purchase a share of this supply, which represents another source of water for recharge at the Corn Camp Project. **Figure 11** shows historical deliveries to the BVWSD through the Outlet Canal and turnouts from the California Aqueduct over the 23-year period extending from 1993 through 2015.

The Corn Camp Groundwater Recharge Project is part of an initiative being undertaken by Buena Vista to become recognized by the U.S. Department of Reclamation as an acknowledged groundwater bank, eligible to store water received from CVP contractors. Therefore, the Corn Camp Groundwater Recharge Pond may also receive water from the Central Valley Project in the future, if approved by the Bureau of Reclamation.

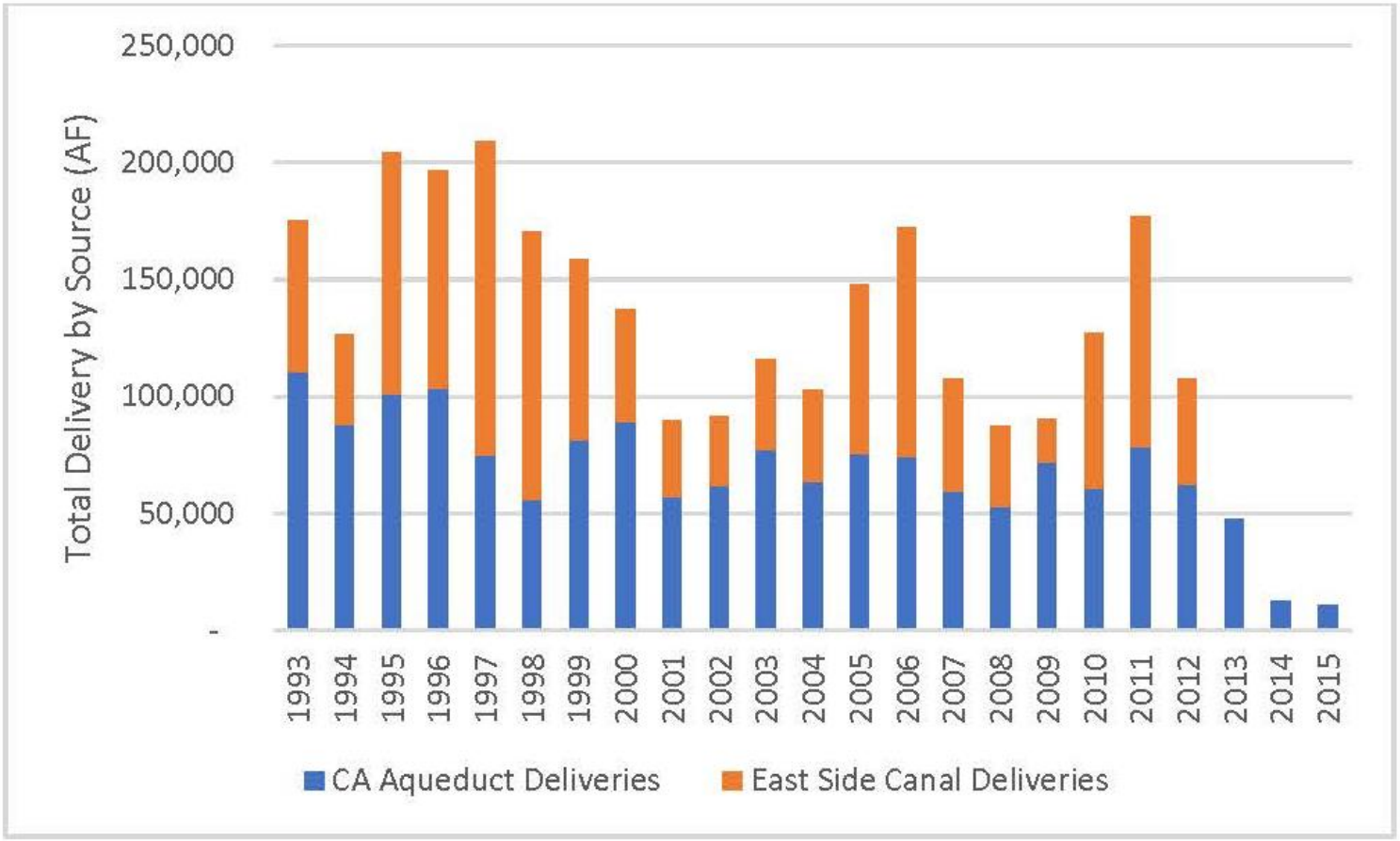


Figure 11 – Surface Water Deliveries to the Buttonwillow Service Area

4. Water Quality and the Environment

4.1 Water Quality

This section summarizes groundwater quality data at the proposed project location as well as the quality of surface water that would be used as the source for recharge.

4.1.1 *Groundwater Quality*

Table 1 summarizes groundwater quality observations recorded at DMW 7. This data shows concentrations of Total Dissolved Solids (TDS) above the Secondary Maximum Contaminant Level (Secondary MCL) on one occasion. Arsenic occurs naturally in soils in this area, and concentrations observed at DMW 7 are uniformly at or very close to the Primary MCL.

Table 1 – Summary of Water Quality Data from DMW 7

Constituent	Sample Date	MCL	Test Result	Units
Chloride[1]	7/24/2008	250	46	mg/L
	8/9/2012	250	35	mg/L
	7/25/2013	250	37	mg/L
	7/30/2014	250	37	mg/L
	7/8/2015	250	41	mg/L
	9/12/2017	250	40	mg/L
Sodium[2]	7/24/2008		119	mg/L
	10/20/2010		83	mg/L
	8/9/2012		91	mg/L
	7/24/2013		94	mg/L
	7/30/2014		110	mg/L
	7/8/2015		110	mg/L
	9/12/2017		110	mg/L
TDS[1]	7/24/2008	500	539	mg/L
	8/9/2012	500	330	mg/L
	7/24/2013	500	340	mg/L
	7/30/2014	500	380	mg/L
	9/12/2017	500	370	mg/L
Arsenic	7/24/2013	10	10	ug/L
	7/30/3014	10	10	ug/L
	7/8/2015	10	9.4	ug/L
	9/12/2017	10	11	ug/L
Nitrate (as NO_3)	8/5/2008	45	0.4	mg/L
	6/19/2013	45	0	mg/L
	7/15/2014	45	0	mg/L
	4/10/2015	45	0	mg/L

1 Secondary MCL
2 No MCL - not toxic in drinking water

4.1.2 *Source Water for Recharge*

Table 2 summarizes water quality for the potential surface water sources waters to be used for recharge. Water quality in the source water is generally better quality than in groundwater, with

concentrations for all constituents below their MCLs.

Table 2 – Summary of Water Quality Data from Surface Water Sources

California Aqueduct – Check 28 (Kettleman City)					
Constituent	**MCL**	**Minimum**	**Average**	**Maximum**	**Units**
Chloride[1]	250	27	78	114	mg/L
Sodium[1]		23	51	76	mg/L
TDS[1]	500	142	257	361	mg/L
Arsenic[1]	10	ND	2	3	ug/L
Nitrate (as NO_3)[1]	45	0.11	0.56	1.26	mg/L
Kern River (near Bakersfield- 2004-2014)					
Constituent	**MCL**	**Minimum**	**Average**	**Maximum**	**Units**
Chloride[3]	250	ND	6.4	10	mg/L
Sodium[3]		ND	15	30	mg/L
TDS[2]	500	40	129	227	mg/L
Arsenic[3]	10	ND	ND	ND	ug/L
Nitrate (as NO_3)[2]	45	ND	0.7	1.8	mg/L

[1] Source: CA DWR Water Data Library (2014)

[2] Source: KCWA Water Supply Reports (2010; 2011, 2012; 2013)

[3] Source: California Regional Water Quality Control Board (2015)

4.2 Environmental Records Search

Environmental data records were reviewed to determine potential sources of groundwater pollution in the Corn Camp Project area. The results of this review are presented in the Phase 1 Environmental Site Assessment included in this document.

5. Assessment of Project Effects

5.1 Approach

The proposed project will affect groundwater levels and groundwater quality during recharge operations. The effects of a range of recharge operations on groundwater levels were evaluated using a groundwater mounding tool to estimate changes in groundwater levels given an estimated infiltration rate, aquifer properties and depth to groundwater that are based on the well tests and geotechnical information detailed in Section 3.5. Changes in groundwater quality were determined qualitatively by comparing surface and groundwater quality to forecast long term changes in groundwater quality likely to result from the mixing with surface water from the Kern River watershed and California Aqueduct.

5.2 Project Effects on Groundwater Levels

Figure 9 and the hydrograph presented in **Appendix B** show that depth to groundwater in the vicinity of the Corn Camp Project between January 2011 and March 2019 ranged from 62 to 126 feet bgs with an average value of 95 feet bgs assumed as the starting condition for the mounding analyses. As shown in **Figure 6** and in the WCRs presented in **Appendix A**, the top of the E-clay lies approximately 480 feet bgs with the difference between the average depth to groundwater and the depth to the top of the E-clay yielding an average thickness of the saturated zone of 385 feet. The mounding analysis was performed using a tool developed by the USGS (2010) which uses the Hantush analytical equation for groundwater flow. The analysis assumes a square recharge basin and does not consider groundwater flow based on partially saturated sediments.

The mounding analysis used the following inputs:

- Infiltration rate: 1.5 ft/day
- Average saturated zone thickness: 385 ft
- Horizontal hydraulic conductivity:
  - 46 ft/day minimum
  - 77 ft/day average
  - 108 ft/day maximum.

Specific yield is not an input into the Hantush equation, so no assumptions with respect to specific yield were needed for this analysis.

Table 3 presents the results of this analysis by displaying increases in groundwater elevations resulting from the following 3 periods of recharge:

- 60 days

- 120 days
- 200 days.

Results are presented for the range of K values described above and at three locations:

- Project Center
- 1-mile radius
- 2-mile radius.

Table 3 – Height of Groundwater Mound for Recharge Periods of 60, 120 and 200 Days (ft)

Recharge Period	Distance from Project Center (miles)	K (feet/day)		
		46 ft/day	77 ft/day	108 ft/day
60 days	0	58	39	30
	1	3.6	4.3	4.4
	2	0.3	0.5	0.7
120 days	0	67	45	34
	1	8.8	8.5	7.8
	2	1.2	1.9	2.2
200 days	0	73	49	37
	1	14	12	11
	2	3.1	3.9	4.1

The results of the mounding analysis indicate that the proposed project will have the beneficial impact of raising groundwater levels in the vicinity of the recharge site, resulting in lower energy costs to lift water from nearby wells. Due to the fact that a constant infiltration rate is being used under all conditions, the rate that water infiltrates into the ground is the same regardless of the horizontal conductivity (K). A low K value causes water to mound directly under the recharge site, thus limiting spreading. Water tends to be confined in the region close to the point of recharge with low K values, causing the mound's center to be distinctly higher. However, less water spreads from the center, so groundwater levels at the periphery of the mound are lower.

Figures 12, 13 and 14 show the increases in anticipated groundwater levels at increasing distances from the Project's center for recharge periods of 60, 120 and 200 days, respectively. These figures indicate that for a 120-day recharge period, the Project could raise groundwater levels from 34 to 67 feet in the center of the basin and that levels could rise by 8 to 9 feet at a distance of 1 mile. For a continuous recharge duration of 60 days, groundwater elevations at the Project site could be expected to increase by 30 to 58 feet, while 200 days of continual recharge could be expected to increase groundwater elevations at the Project site by 37 to 73 feet. The height and extent of the groundwater mound will be monitored once the Project comes into operation.

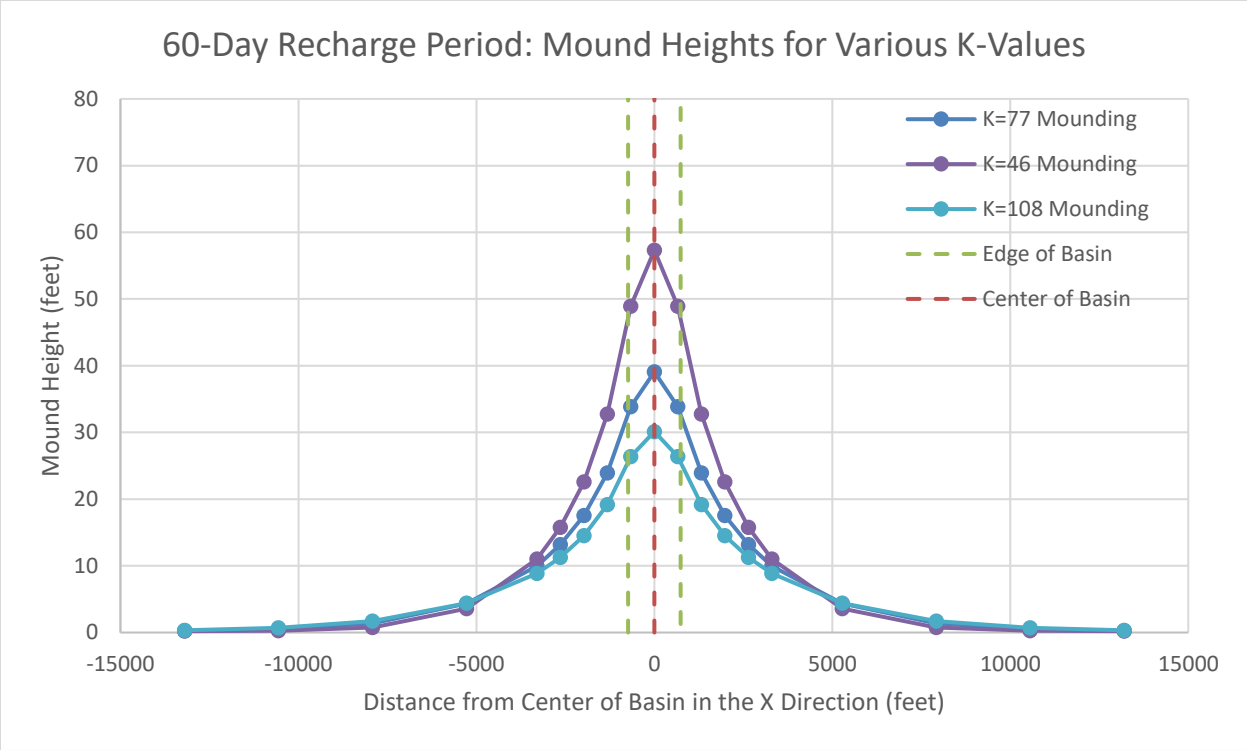


Figure 12 - Predicted Recharge Mound Height: 60-day Recharge Period

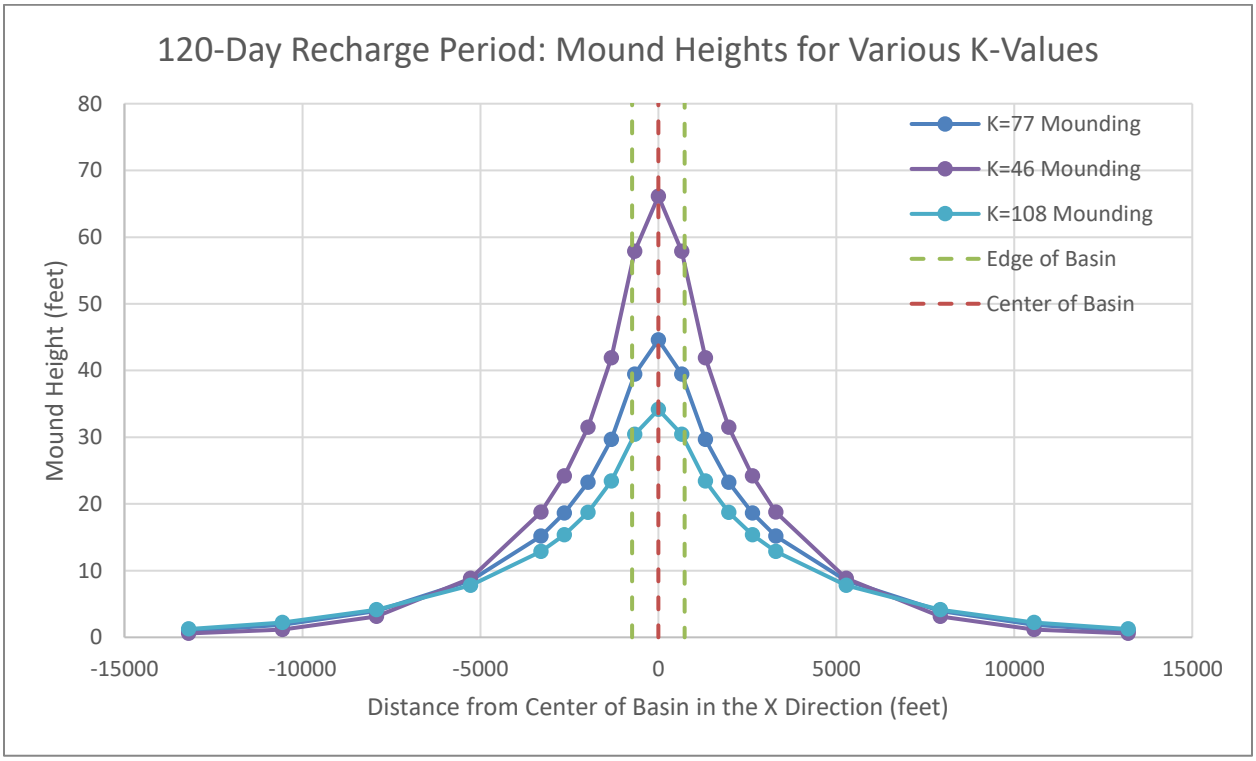


Figure 13 - Predicted Recharge Mound Height: 120-day Recharge Period

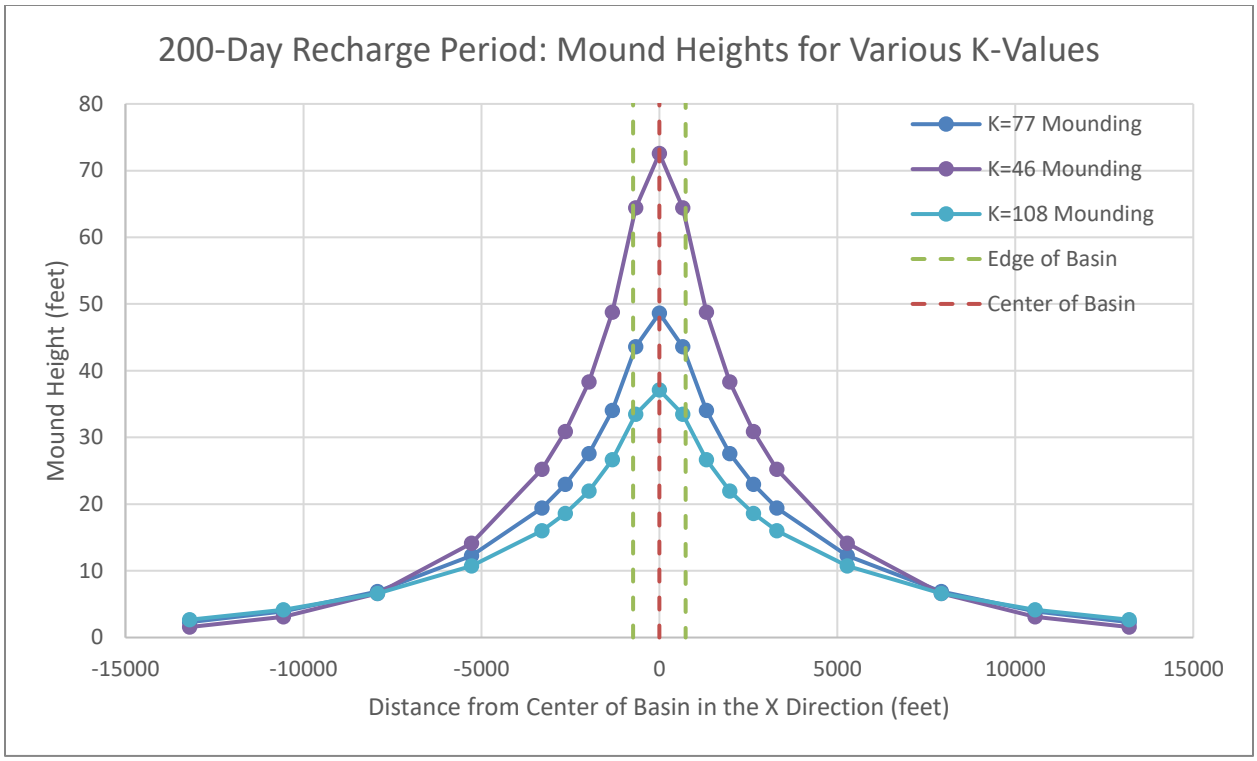


Figure 14 - Predicted Recharge Mound Height: 200-day Recharge Period

5.3 Project Effects on Groundwater Quality

Section 4.1 of this report summarizes groundwater quality as well as the quality of surface water used for replenishment at the Corn Camp Project. The recharge of surface water with groundwater through recharge operations will result in blended water quality. The actual aquifer water quality resulting from the mixing of surface and groundwater will depend on the volume of water recharged, the duration of recharge and the distance away from the project. No adverse geochemical reactions are predicted based on the mixing of surface and groundwater quality for the Corn Camp Project. Due to the fact that both surface water sources have levels of dissolved solids, trace minerals and major ions lower than those found in groundwater, the blended mix that results from recharge will lead to lower levels of total dissolved solids, major ions and trace minerals in the mixing zone within the aquifer.

5.4 Summary of Project Impacts

The analysis documented in this report indicates that groundwater levels and groundwater quality will be affected by the Corn Camp Recharge Project. In both cases, the changes are beneficial to existing and potential users of the groundwater resource. Groundwater levels will rise and total dissolved solids concentrations will decline with the absolute amount of the changes depending on the volume and duration of recharge. Due to the regionally extensive nature of the E-clay as described in Section 2.1 and shown on **Figure 6**, the recharge benefits described above pertain to wells screened above the E-clay but will also reduce the risk of poor-quality water migrating vertically from beneath the E-clay.

The only potentially negative impact to groundwater quality would be the migration of pollutants (if present) from the soil into the groundwater system during recharge. To mitigate for this condition, BVWSD will monitor for the presence of contaminated soils during construction of the recharge basins.

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6. References

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Appendix A – Well Completion Reports

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 0942654

DWR USE ONLY — DO NOT FILL IN
29S/23E-16
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Owner's Well No. Lokern Back up
Date Work Began 2-9-06, Ended 4-1-06
Local Permit Agency Kern Co. Env. Health
Permit No. EH. 3392 Permit Date 12-2-05

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	60	Sandy
60	80	Sand Grey/Blue
80	100	Sand Some Clay
100	500	Sand
500	560	Clay

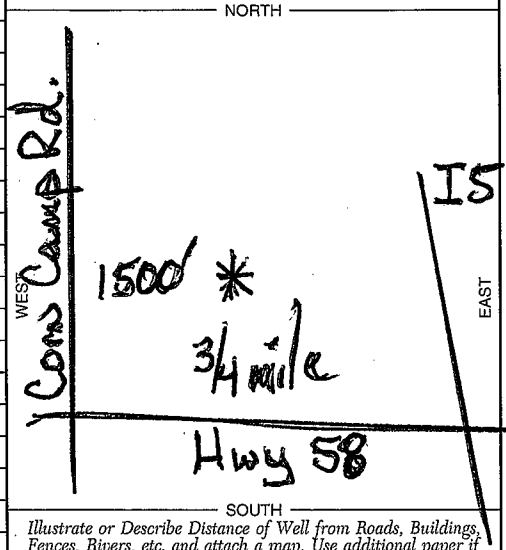
TOTAL DEPTH OF BORING 530 (Feet)
TOTAL DEPTH OF COMPLETED WELL 520 (Feet)

NOT FOR PUBLIC DISCLOSURE CONFIDENTIAL SEE "SECRECY" WATER CODE

WELL LOCATION

Address 3/4 Mil N/ of Hwy 58, 1500' East of Corn Camp Rd
City Buttonwillow
County Kern
APN Book 100 Page 170 Parcel 01
Township 29S Range 23E Section 16
Lat 35 DEG. 24 MIN. 34.7 SEC. N Long 119 DEG. 30 MIN. 48.2 SEC. W

LOCATION SKETCH



*Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)
X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)
WATER SUPPLY
___ Domestic X Public
___ Irrigation ___ Industrial
___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 50 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 50 (Ft.) & DATE MEASURED 3-28-06
ESTIMATED YIELD * 2500 (GPM) & TEST TYPE Const. Rate
TEST LENGTH 12 (Hrs.) TOTAL DRAWDOWN 47 (Ft.)
** May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	CASING (S) TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
+3	50	48			X		ASTM139GrdB	36	5/16	
+3	250	28	X				316L SS	16	5/16	
250	500	28		X			Full Flo	16	5/16	.050
500	520	28	X				Full Flo	16	5/16	
+3	240		X				316L SS	4	Sch.40	Gravel Tube
+3	240						316L SS		Sch.40	Sounding Tube

DEPTH FROM SURFACE Ft.	to Ft.	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
+3	200	X			Seal
200	210		X		
210	520			X	8x16
					CSI

ATTACHMENTS (✓)
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Bakersfield Well & Pump Co.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

7212 Fruitvale Ave (ADDRESS) Bakersfield (CITY) CA (STATE) 93308 (ZIP)

Signed ___ C-57 LICENSED WATER WELL CONTRACTOR
6-5-06 DATE SIGNED
440537 C-57 LICENSE NUMBER

B 5 RP-1

29/23-17A (CONT)

ORIGINAL
File original, Duplicate and Triplicate with the
REGIONAL WATER POLLUTION
CONTROL BOARD No.
(Insert appropriate number)

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED
Do Not Fill In
No. 75070
State Well No. 17A
Other Well No. 29S/23E-17A

(1) OWNER:

Name
Address

(2) LOCATION OF WELL:

County Kern Owner's number, if any
R. F. D. or Street No.

Sec. 16 Tws. 29S Range 23E M.D.
1/8 mile south of Delfern Rd.
150 ft. west of Corn Camp Rd.

(3) TYPE OF WORK (*check*):

New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (*check*):

Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(5) EQUIPMENT:

Rotary ☒
Cable ☐
Dug Well ☐

(6) CASING INSTALLED:

SINGLE ☒ DOUBLE ☐

From ft.	to ft.	Diam.	Gage or Wall
0	144	16"	x 5/16
144	450	16"	x 1/4

If gravel packed

Diameter of Bore	from ft.	to ft.
27½	0	450

Type and size of shoe or well ring: point
Describe joint: buttwelded
Size of gravel: 1/8 - 3/8

(7) PERFORATIONS:

Type of perforator used: louvre cut
Size of perforations: 2½ in., length, by 5/32 in.

From ft.	to ft.	Perf. per row	Rows per ft.
144	450	11	5½

MICROFILMED

(8) CONSTRUCTION:

Was a surface sanitary seal provided? ☐ Yes ☒ No To what depth ft.

Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata

From ft.	to ft.

Method of Sealing

(9) WATER LEVELS:

Depth at which water was first found: 41 ft.
Standing level before perforating: ft.
Standing level after perforating: ft.

(10) WELL TESTS:

Was a pump test made? ☐ Yes ☒ No If yes, by whom?

Yield: gal./min. with ft. draw down after hrs.

Temperature of water Was a chemical analysis made? ☐ Yes ☒ No

Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG:

Total depth 450 ft. Depth of completed well 450 ft.

Formation: *Describe by color, character, size of material, and structure.*

0	ft. to 8	ft.	soil & fill
8	" 19	"	brown clay
19	" 23	"	sand
23	" 36	"	yellow clay
36	" 43	"	sand
43	" 51	"	yellow clay
51	" 62	"	sand
62	" 69	"	yellow clay
69	" 78	"	sand
78	" 92	"	yellow clay
92	" 100	"	sand
100	" 112	"	yellow clay
112	" 122	"	sand
122	" 129	"	yellow clay
129	" 136	"	medium sand
136	" 143	"	yellow clay
143	" 152	"	medium sand
152	" 161	"	yellow clay
161	" 172	"	medium sand
172	" 178	"	blue clay
178	" 192	"	medium sand
192	" 200	"	blue clay
200	" 210	"	medium sand
210	" 218	"	blue clay
218	" 231	"	medium sand
231	" 239	"	blue clay
239	" 249	"	medium sand
249	" 257	"	blue clay
257	" 268	"	medium sand
268	" 279	"	blue clay
279	" 291	"	medium sand
291	" 300	"	blue clay
300	" 312	"	medium sand
312	" 323	"	blue clay
323	" 334	"	medium sand
334	" 344	"	blue clay
344	" 358	"	coarse sand
358	" 369	"	blue clay
369	" 383	"	coarse sand
383	" 394	"	blue clay
394	" 408	"	coarse sand
408	" 420	"	blue clay
420	" 428	"	coarse sand cont.

Work started 1-22-1963 Completed 2-1-1963

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Slocum Water Well Drilling
(Person, firm, or corporation) (Typed or printed)

Address 1900 Ming Road
Bakersfield, California

[SIGNED] Mary E. Slocum by C. A. Bowles
Well Driller

License No. 198639 C 57 Dated Feb. 6, 1963

57028 6-57.50M QUIN △ SPO

DWR 188 (REV. 3-54)

LSD Elev. 265 29/23-16R1 29/23-16R1

SAN JOAQUIN DV

Owner:

LOG OF MILLER AND LUX WELL NO. 8

14" Casing

Surface to 9 feet	9 feet Soil
15	Fine grained yellow sand
23	Yellow sandy clay
25	Blue sandy clay
32	Fine grained blue sand
55	Blue sandy clay
63	Fine sand
70	Yellow sandy clay
95	Blue sandy clay
120	Fine sand
132	Tough yellow clay
160	Blue sandy clay
191	Fine sand
196	Tough blue clay
199	Blue sandy clay
220	Blue water sand
260	Tough blue clay
271	Blue water sand
300	Tough blue clay
320	Blue sandy clay
340	Very sandy blue clay
346	Tough blue clay
350	Sandy blue clay
393	Tough yellow clay
419	Sticky blue clay
430	Sandy blue clay
445	Tough blue clay
470	Sandy blue clay
552	Yellow clay Streaks very sandy

MICROFILMED

50	100	200
		1
	13	51
44	37	31
		17
93	50	100

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0129336

Page 1 of 1

Owner's Well Number 72720

Date Work Began 03/30/2011 Date Work Ended 4/3/2011

Local Permit Agency KERN CO ENVIRONMENTAL HEALTH DEPT

Permit Number WP12868 Permit Date 3/23/11

DWR Use Only – Do Not Fill In

State Well Number/Site Number: 29S/23E/15

Latitude N Longitude W

APN/TRS/Other

Geologic Log

Orientation ⊙ Vertical ○ Horizontal ○ Angle Specify

Drilling Method REVERSE CIRCULATION ROTARY Drilling Fluid Fresh Water

Depth from Surface Feet	to Feet	Description: Describe material, grain size, color, etc
0	50	CONDUCTOR
50	90	SAND, CLAY
90	110	SAND
110	130	CLAY
130	190	SAND, CLAY
190	210	SAND
210	240	SAND, CLAY
240	250	SAND
250	260	CLAY
260	280	SAND
280	290	CLAY
290	340	SAND
340	370	SAND, CLAY
370	380	SAND
380	400	SAND, CLAY
400	440	SAND
440	460	CLAY
460	470	SAND, CLAY

Total Depth of Boring 470 Feet

Total Depth of Completed Well 460 Feet

Well Location

Address HWY 58 & ELK GROVE 1/4N E/S

City BUTTONWILLOW County Kern

Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

Datum ___ Decimal Lat. ___ Decimal Long. ___

APN Book 100 Page 120 Parcel 19

Township 29S Range 23E Section 15

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North / West / East / South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. **Please be accurate and complete.**

Activity

- ⊙ New Well
- ○ Modification/Repair
  - ○ Deepen
  - ○ Other ___
- ○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

- ⊙ Water Supply
  - ☐ Domestic ☐ Public
  - ☑ Irrigation ☐ Industrial
- ○ Cathodic Protection
- ○ Dewatering
- ○ Heat Exchange
- ○ Injection
- ○ Monitoring
- ○ Remediation
- ○ Sparging
- ○ Test Well
- ○ Vapor Extraction
- ○ Other ___

Water Level and Yield of Completed Well

Depth to first water ___ (Feet below surface)

Depth to Static Water Level ___ (Feet) Date Measured ___

Estimated Yield * ___ (GPM) Test Type ___

Test Length ___ (Hours) Total Drawdown ___ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	50	34	Conductor	STEEL				
0	200	30	Blank	PVC	SDR17	17.4		
200	260	30	SLOTTED	PVC	SDR17	17.4	.050	

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	50	Cement	

Attachments

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☐ Other ___

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name S. A. CAMP PUMP & DRILLING CO. (Person, Firm or Corporation)

P.O. BOX 82575 (Address) BAKERSFIELD (City) CA (State) 93380-2575 (Zip)

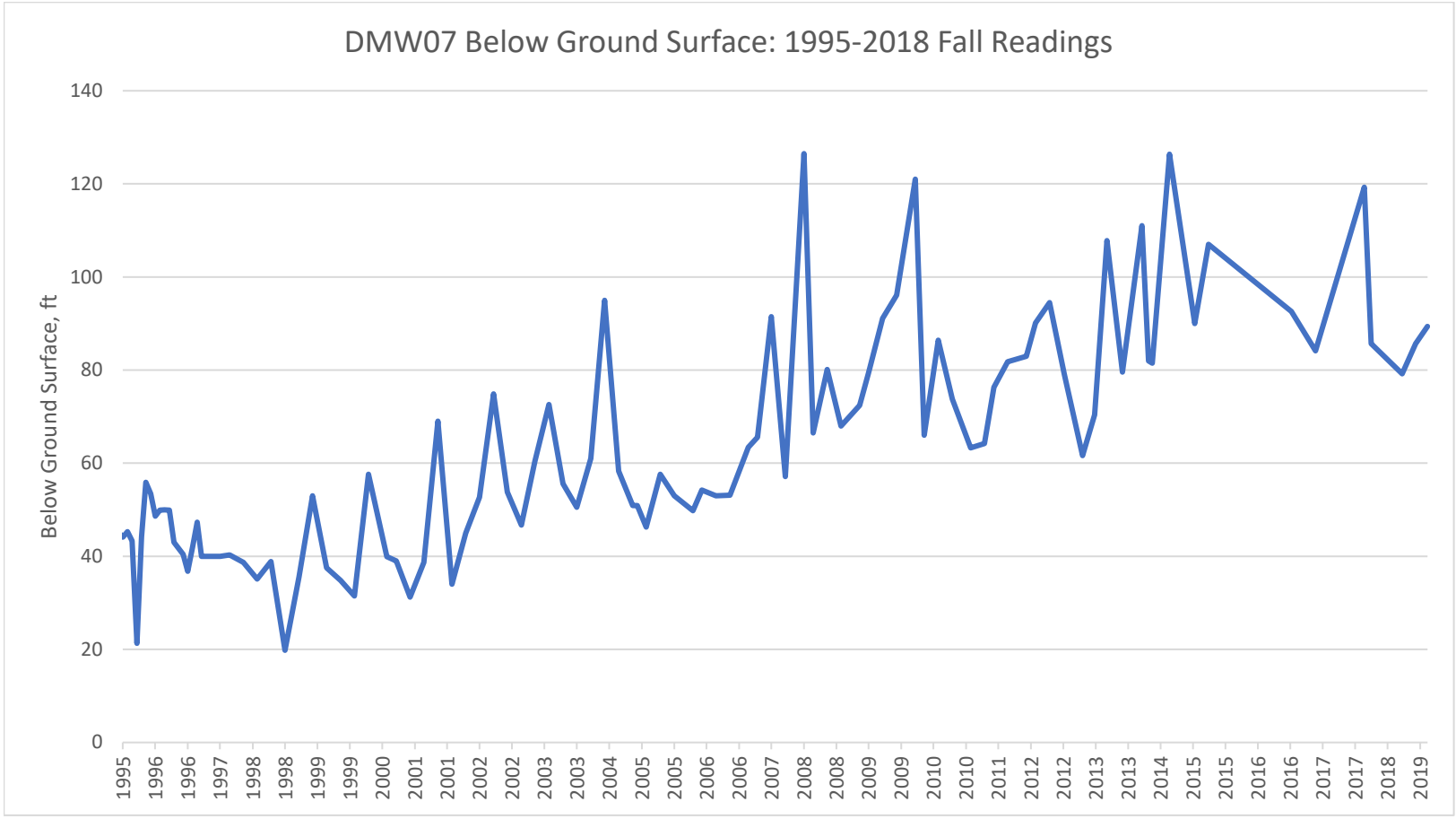
Signed ___ (C-57 Licensed Water Well Contractor) 4/28/11 (Date Signed) 346951 (C-57 License Number)

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Appendix B – Groundwater Hydrograph

Appendix B


DMW07 Below Ground Surface: 1995-2018 Fall Readings
Below Ground Surface, ft
140
120
100
80
60
40
20
0
1995
1996
1996
1997
1998
1998
1999
1999
2000
2001
2001
2002
2002
2003
2003
2004
2005
2005
2006
2006
2007
2008
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2016
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2017
2018
2019