3.9 - Hydrology and Water Quality

3.9.1 - Introduction

This section describes the existing hydrology and water quality setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on information provided by the Western Regional Climate Center, the Yolo County General Plan, the City of Woodland General Plan, the California Department of Water Resources Bulletin 118, and project plans.

3.9.2 - Environmental Setting

Climate

Yolo County is characterized by a Mediterranean climate, with warm summers, mild winters, and low precipitation. Temperatures in Yolo County near the project sites range from an average high of 94.1 degrees Fahrenheit (°F) in July to an average low of 54.0°F in January. Rainfall averages 17.55 inches annually. General meteorological data, as measured at the Davis weather station, are presented in Table 3.9-1.

Table 3.9-1: Meteorological Summary

Month	Temperature (°F)		Precipitation (inches)
	Average High	Average Low	
January	54.0	36.9	3.0
February	60.4	39.7	3.22
March	65.8	41.8	2.36
April	72.4	44.5	1.18
May	80.5	49.1	0.46
June	88.3	53.6	0.19
July	94.1	55.4	0.01
August	92.8	54.0	0.03
September	88.6	52.4	0.24
October	78.9	47.4	0.83
November	65.5	40.7	1.92
December	54.9	36.9	3.31
Annual Average	**74.4**	**46.0**	**17.55**

Note:
Measurements recorded at the Davis 1 WSW weather station between 1893 and 2012.
Source: Western Regional Climate Center, 2012.

Surface Water Bodies

Surface water includes streams, drainage channels, ponds, lakes, and other water on the surface of the land. Rainfall is the source of most surface water in Yolo County. Rainfall occurs during a short season in relatively intense storms. The amount of water flowing on the surface depends on how much water soaks into the ground, which in turn is dependent on the characteristics of the soil and on the amount of land made impermeable by development (roads, roofs, parking lots, etc.). These impervious surface areas, generally associated with urbanization, prevent water from infiltrating into the soil, resulting in stormwater runoff, which can become polluted as it flows over urbanized areas. This untreated runoff typically enters a storm drain system and is conveyed to local waterways.

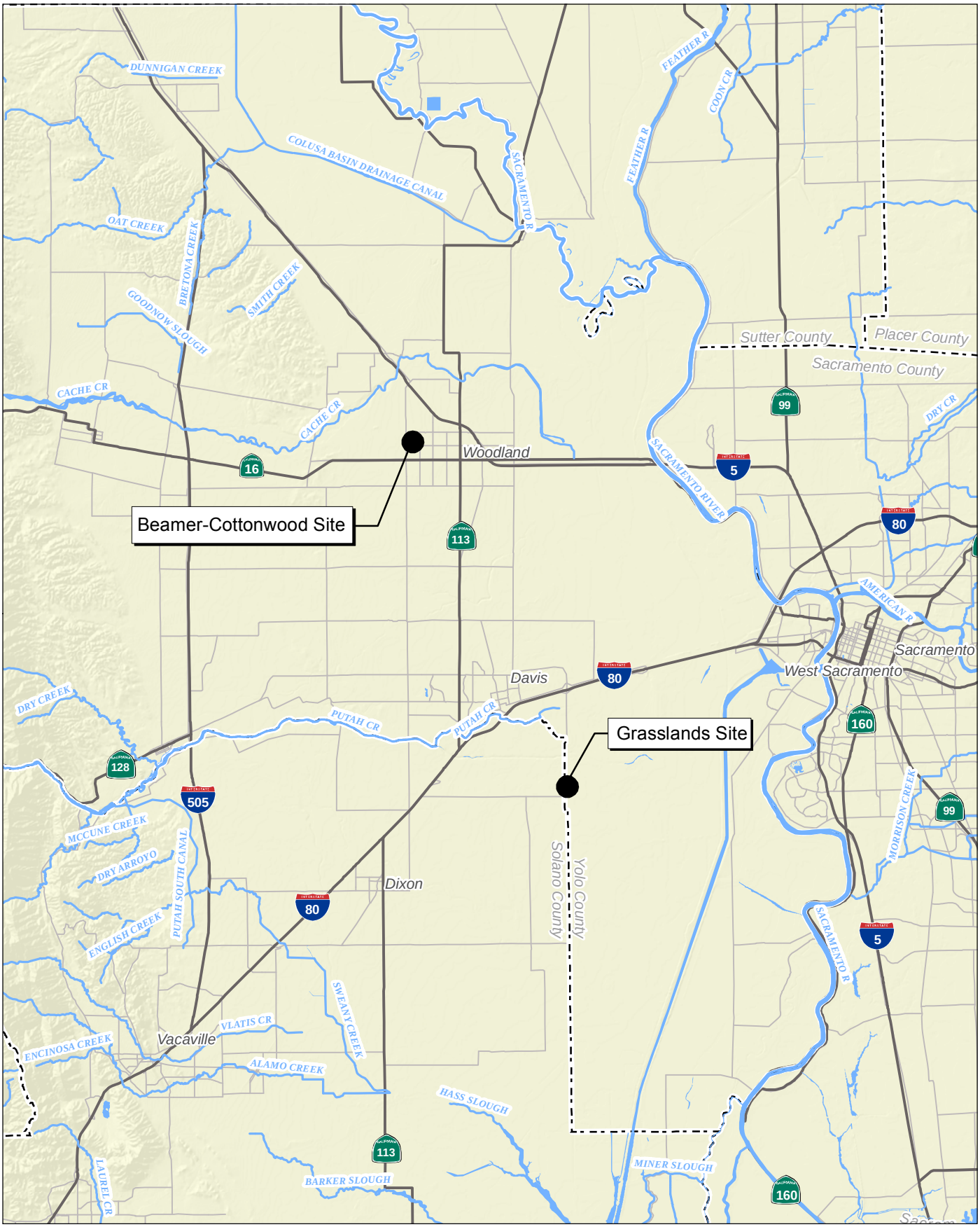
Yolo County features a network of natural and man-made surface water bodies. According to the Yolo County General Plan, and as shown on Exhibit 3.9-1, major surface water features in Yolo County include Cache Creek, Putah Creek, the Sacramento River, and the Yolo Bypass. Each is described below.

- **Cache Creek** is the outfall of Clear Lake, which is located 50 miles northwest of Yolo County in Lake County. Cache Creek flows from northwestern Yolo County to north of Woodland.
- **Putah Creek** begins in Lake County, flows through Napa County and the Lake Berryessa Reservoir into Southern Yolo County, and eventually into the Yolo Bypass. Putah Creek forms a portion of the southern boundary of Yolo County.
- **Sacramento River** is a 447-mile-long river beginning in Shasta County and passing west of the City of Sacramento. The Sacramento River forms the County's eastern boundary. The Sacramento River includes the Sacramento River Deep Water Ship Channel located in Southern Yolo County west of the primary Sacramento River stream bed.
- **Yolo Bypass** is a 41-mile-long, several-mile-wide levied floodplain that carries flood flows from the Sacramento River to the Sacramento Delta, south of Yolo County. Its tributaries include Cache Creek and Putah Creek. The Yolo Bypass runs north to south in the far eastern portion of the county, passing west of the City of West Sacramento.

Other surface waters in Yolo County include a network of sloughs, irrigation canals, and drainage ditches, including the Tehama-Colusa Canal, Colusa Basin Drain, Willow Slough, Winters Canal, West Adams Canal, and Elk Slough.

Surface Water Quality

Cache Creek is the only of the previously mentioned water bodies listed on the U.S. Environmental Protection Agency (EPA) 303(d) list of impaired water bodies, which are defined as those that do not meet, or are not expected to meet, water quality standards. For water bodies identified as impaired, the State is required to develop a Total Maximum Daily Load (TMDL) to account for all sources of pollutants from both point and nonpoint sources that are attributed to its listing.



Source: Census 2000 Data, The CaSIL, MBA GIS 2012.

NORTH

5 2.5 0 5

Miles

Michael Brandman Associates

17590007 • 08/2012 | 3.9-1_regional_hydrology.mxd

Exhibit 3.9-1
Regional Hydrology

YOLO COUNTY DEPARTMENT OF GENERAL SERVICES
ENVIRONMENTAL EDUCATION AND SUSTAINABILITY PARK PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT

The TMDL identifies limitations on discharge of a pollutant or stressor into the waterway over a defined time period. There also can be multiple TMDLs on a particular water body, or there can be one TMDL that addresses numerous pollutants. Cache Creek is listed on the EPA 303(d) list for mercury, boron, and unknown toxicity.

Grasslands Site

Drainage

The Grasslands site is undeveloped. Drainage occurs via sheet flows across the site to natural depressions for percolation and to adjacent roadside ditches.

Groundwater

The Grasslands Site is located in the Sacramento Valley Groundwater Basin, Solano Subbasin. The Solano Subbasin encompasses 664 square miles within the southwestern portion of the Sacramento Valley Basin and the northern portion of the Sacrament-San Joaquin Delta. Historically, groundwater levels in the Solano Subbasin have been impacted by bellow-average precipitation and increasing agricultural and urban development but have leveled out in response to surface water deliveries from the Solano Project and periods of normal rainfall (DWR 2003). Groundwater within the Solano subbasin is considered to be of generally good quality, and usable for both domestic and agricultural purposes. Depth to groundwater at the Grasslands site is unknown.

Flood Plain Mapping

The Grasslands site is located within Flood Hazard Zone D. The Federal Emergency Management Agency (FEMA) defines Zone D as areas in which flood hazards are undetermined, but possible.

Dams and Levees

The Yolo County General Plan indicates that portions of Yolo County are located downstream of dams or are protected by levees along the Sacramento, Feather, and American Rivers. Figure HS-5 of the Yolo County General Plan indicates that the Grasslands site is located within a Dam Inundation Zone.

Beamer/Cottonwood Site

Drainage

Drainage at the Beamer/Cottonwood site is conveyed via sheet flows across the site to natural depressions for percolation. The site is surrounded by developed land that is served by the City of Woodland's municipal storm drain system.

Groundwater

The Beamer/Cottonwood Site is located in the Sacramento Valley Groundwater Basin, Yolo Subbasin. The Yolo Subbasin encompasses 400 square miles within the southwestern portion of the Sacramento Valley Basin primarily within Yolo County. Historically, groundwater levels in the Yolo Subbasin have been impacted by periods of drought due to increased groundwater pumping and less surface water recharge, but the levels recover quickly in wet years. Groundwater within the Yolo

subbasin is considered good for both domestic and agricultural purposes. Depth to groundwater at the Beamer/Cottonwood Site is unknown.

Flood Plain Mapping

The Beamer/Cottonwood site is located within Flood Hazard Zone X. FEMA defines Zone X as areas determined to be outside the 0.1 percent annual chance (100-year) floodplain.

Dams and Levees

The Yolo County General Plan indicates that portions of Yolo County are located downstream of dams or are protected by levees along the Sacramento, Feather, and American Rivers. Figure HS-5 of the Yolo County General Plan indicates that the Beamer/Cottonwood site is located within a Dam Inundation Zone.

3.9.3 - Regulatory Framework

Federal

Clean Water Act

Section 303 of the Clean Water Act requires states to adopt water quality standards for all surface waters of the United States. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. (See a description of State Porter-Cologne Water Quality Control Act, below.) Standards are based on the designated beneficial use(s) of the water body. Where multiple uses exist, water quality standards must protect the most sensitive use.

Phase II

Section 402 of the Clean Water Act mandates that certain types of construction activity comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) stormwater program. In California, permitting occurs under the General Permit for Stormwater Discharges Associated with Construction Activity, issued to the State Water Resources Control Board (SWRCB) and implemented and enforced by the nine RWQCBs. The project site is within the boundaries of the Central Valley RWQCB.

The first iteration of the Phase II Rule, issued in 1999, required that construction activities that disturb land equal to or greater than 1 acre require permitting under the NPDES program.

This General Permit required all dischargers, where construction activity disturbs one (1) or more acres, to take the following measures:

1. Develop and implement a Storm Water Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off site into receiving waters.

2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.

3. Perform inspections of all BMPs.

On September 2, 2009, the SWRCB adopted a revised NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order 2009-0009 DWQ). The permit became effective on July 1, 2010, and covers construction projects that disturb 1 or more acres or that are part of a larger common plan of development that disturbs more than 1 acre in total (e.g., large linear utility projects). One of the biggest differences in the revised permit involves the specificity necessary for Best Management Practices (BMPs). Whereas the previous general permit order left the selection of BMPs to the discretion of the applicant, and allowed the applicant to present them in qualitative terms, the revised permit now requires that applicants implement an SWPPP that includes specific BMPs, requires a greater number of BMPs, and establishes quantitative numeric effluent limitations for water quality metrics such as pH and turbidity. The specific requirements will depend on an assessment of the risk level associated with a given site. In addition, the permit now requires a Rain Event Action Plan, which must be designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event, and significant new monitoring and reporting requirements.

To obtain compliance, the landowner must file a Notice of Intent with the SWRCB. The notice is required to include the requirements listed above. When project construction is completed, the landowner must file a notice of termination.

C.3 Provisions

In 2003, the RWQCB issued a municipal stormwater permit under the NPDES permit program. The purpose of the permit is to reduce the discharge of pollutants in stormwater to the maximum extent practicable and to effectively prohibit non-stormwater discharges into municipal storm drain systems and watercourses. The permit incorporates Provision C.3, which establishes stormwater pollution management requirements for new development and redevelopment projects.

Provision C.3 requires that certain new development and redevelopment projects incorporate post-construction stormwater pollution management measures, including stormwater treatment measures, stormwater site design measures, and source control measures, to reduce stormwater pollution after the construction of the project. These requirements are in addition to standard BMPs.

Floodplain Regulations

The Federal Emergency Management Agency (FEMA) oversees floodplains and administers the National Flood Insurance Program (NFIP) adopted under the National Flood Insurance Act of 1968. The program makes federally subsidized flood insurance available to property owners within communities that participate in the program. Areas of special flood hazard (those subject to inundation by a 100-year flood) are identified by FEMA through regulatory flood maps titled Flood

Insurance Rate Maps. The NFIP mandates that development cannot occur within the regulatory floodplain (typically the 100-year floodplain) if that development results in an increase of more than one foot in flood elevation. In addition, development is not allowed in delineated floodways within the regulatory floodplain.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 authorized the SWRCB to provide comprehensive protection for California's waters through water allocation and water quality protection. The SWRCB implements the requirement of the Clean Water Act Section 303, indicating that water quality standards have to be set for certain waters by adopting water quality control plans under the Porter-Cologne Act. The Porter-Cologne Act established the responsibilities and authorities of the nine RWQCBs, which include preparing water quality plans for areas in the region, identifying water quality objectives, and issuing NPDES permits and Waste Discharge Requirements (WDRs). Water quality objectives are defined as limits or levels of water quality constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance. The Porter-Cologne Act was later amended to provide the authority delegated from the Environmental Protection Agency (EPA) to issue NPDES permits.

Section 303(d) of the CWA requires that the SWRCB identify surface water bodies within California that do not meet established water quality standards. Once identified, the affected water body is included in the SWRCB's "303(d) Listing of Impaired Water Bodies," and a comprehensive program must then be developed to limit the amount of pollutant discharges into that water body. This program includes the establishment of "total maximum daily loads" (TMDL) for pollutant discharges into the designated water body. The most recent 303(d) listing for California was approved by the EPA in 2010.

Central Valley Regional Water Quality Control Board

The Central Valley RWQCB's Water Quality Control Plan (Basin Plan) covers the Sacramento and San Joaquin river basin (which includes the project site) and consists of a designation or establishment for waters of beneficial uses to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. Water quality objectives are defined as limits or levels of water quality constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance. The Porter-Cologne Act was later amended to provide the authority delegated from the Environmental Protection Agency (EPA) to issue NPDES permits.

Local

Yolo County General Plan

The Yolo County General Plan establishes the following goals and policies related to hydrology and water quality resources that are applicable to the proposed project:

- **Goal CO-5:** Water Resources. Ensure an abundant, safe, and sustainable water supply to support the needs of existing and future generations.
- **Policy CO-5.6:** Improve and protect water quality for municipal, agricultural, and environmental uses.
- **Policy CO-5.12:** Support the integrated management of surface and groundwater, stormwater treatment and use, the development of highly treated wastewater, and desalinization where feasible.
- **Policy CO-5.14:** Require that proposals to convert land to uses other than agriculture, open space, or habitat demonstrate that groundwater recharge will not be significantly diminished.
- **Policy CO-5.15:** Encourage new development and redevelopment to use reclaimed wastewater, where feasible, to augment water supplies and to conserve potable water for domestic purposes.
- **Policy CO-5.16:** Require all development to have an adequate water supply. Require significant discretionary projects to demonstrate adequate long-term and sustainable water supplies by preparing a verified water supply assessment. The assessment shall demonstrate a long-term, reliable water supply satisfactory under normal and above normal rainfall conditions, as well as drought conditions. Satisfy the requirements of CEQA Guidelines Section 15155 to consult with water agencies regarding water supply assessments.
- **Policy CO-5.17:** Require new development to be designed such that nitrates, lawn chemicals, oil, and other pollutants of concern do not impair groundwater quality.
- **Policy CO-5.19:** Strive for "water-neutral" development with new water demand offset by efficiency improvements elsewhere in the system. Require all new developments to offset new water demands to the greatest extent feasible.
- **Policy CO-5.23:** Support efforts to meet applicable water quality standards for all surface and groundwater resources.
- **Policy CO-5.29:** Vigorously protect all water rights related to lands within Yolo County, including areas of origin, riparian water rights, and other existing water rights.
- **Goal HS-2:** Flood Hazards. Protect the public and reduce damage to property from flood hazards.
- **Policy HS-2.1:** Manage the development review process to protect people, structures, and personal property from unreasonable risk from flooding and flood hazards.
- **Policy HS-2.4:** Clearly communicate the risks, requirements, and options available to those who own land and live within the floodplain.

Yolo County Municipal Code

Flood Plain Management Ordinance

Title 2, Chapter 3, Flood Plain Management, of the Yolo County Municipal Code sets forth regulations to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas of Yolo County. The Flood Plain Management

Ordinance includes methods and provisions to restrict or prohibit land uses that are dangerous due to flooding hazards, protection against flood damage, maintenance of natural waterways that accommodate or channel flood waters and prevent or regulate flood barriers, which will unnaturally divert flood waters or increase flood hazards in other areas. A Flood Hazard Development Permit must be obtained before any construction or other development begins within any area of special flood hazards established by the Flood Plain Management Ordinance. The Ordinance also provides standards of construction for development within special flood hazard areas.

City of Woodland General Plan

The City of Woodland General Plan establishes the following goals and policies related to hydrology and water quality resources that are applicable to the proposed project:

- **Goal 4.E:** To collect and dispose of stormwater in a manner that minimizes inconvenience to the public, minimizes potential water-related damage, and enhances the environment and complies with state and federal laws.
- **Policy 4.E.2:** The City shall encourage project designs that minimize drainage concentrations and impervious coverage.
- **Policy 4.E.3:** The City shall prohibit grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of storm drainage facilities.
- **Policy 4.E.4:** The City shall require projects that have impacts on the quantity and quality of surface water runoff to incorporate mitigation measures for impacts related to urban runoff and/or pay fees in lieu of the support of City-sponsored projects for this purpose.
- **Goal 7.A:** To protect and enhance the natural quantity and qualities of the Woodland area's rivers, creeks, sloughs, and groundwater.
- **Policy 7.A.4:** The City shall help protect groundwater resources from overdraft by promoting water conservation and groundwater recharge efforts.
- **Policy 7.A.5:** The City shall continue to require the use of feasible and practical best management practices (BMPs) to protect receiving waters from the adverse effects of construction activities and urban runoff.

3.9.4 - Methodology

Michael Brandman Associates analyzed the proposed project's potential to cause adverse impacts on hydrology and water quality utilizing several resources. The Western Regional Climate Center provided information about meteorology and climate. The Yolo County General Plan provided descriptions of waterways and hydrological characteristics of the Yolo County. Bulletin 118, published by the California Department of Water Resources, provided information about groundwater. FEMA Flood Insurance Rate Maps (FIRMs) provided information on the potential for flooding. Project plans were reviewed for potential drainage needs.

3.9.5 - Thresholds of Significance

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, hydrology and water quality impacts resulting from the implementation of the proposed project would be considered significant if the project would:

a) Violate any water quality standards or waste discharge requirements?

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted?

c) Substantially alter the existing drainage pattern of area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? (Refer to Section 7, Effects Found Not To Be Significant.)

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site? (Refer to Section 7, Effects Found Not To Be Significant.)

e) 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?

f) Otherwise substantially degrade water quality?

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (Refer to Section 7, Effects Found Not To Be Significant.)

h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows? (Refer to Section 7, Effects Found Not To Be Significant.)

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

j) Inundation by seiche, tsunami, or mudflow? (Refer to Section 7, Effects Found Not To Be Significant.)

3.9.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Short-Term Water Quality

Impact HYD-1: Construction activities associated with the proposed project would not have the potential to degrade water quality in downstream water bodies.

Impact Analysis

This impact addresses checklist items a), e) and f) in the context of short-term water quality impacts from construction activities.

Grasslands Site

Project implementation at the Grasslands site would involve the development of a 5-megawatt (MW) photovoltaic (PV) solar facility on 21 acres and an adjacent environmental education center and park host site. During construction activities there would be the potential for surface water to carry sediment from onsite erosion and small quantities of pollutants offsite. Soil erosion may occur along project boundaries during construction in areas where temporary soil storage is required. Small quantities of pollutants have the potential for exiting the site and thereby potentially degrading water quality during heavy storm events.

Construction of the proposed project would also require the use of gasoline and diesel-powered heavy equipment, such as bulldozers, backhoes, and air compressors. Chemicals such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, solvents, glues, and other substances would likely be utilized during construction. An accidental release of any of these substances could degrade the water quality of the surface water runoff and add additional sources of pollution.

The NPDES stormwater permitting programs regulate stormwater quality from construction sites. Under the NPDES permitting program, the preparation and implementation of SWPPPs are required for construction activities that disturb more than 1 acre in area. The SWPPP must identify potential sources of pollution that are reasonably expected to affect the quality of stormwater discharges as well as identify and implement BMPs that ensure the reduction of these pollutants during stormwater discharges. Federal and state law provide that BMPs must achieve specific quantitative numeric effluent limitations, and monitoring and reporting requirements will apply. The project would implement an SWPPP prior to the issuance of permits. The implementation of the SWPPP would ensure that runoff associated with short-term construction activities would not contribute to the degradation of water quality in downstream waterways, particularly those with TMDLs in effect. Impacts would be less than significant.

Beamer/Cottonwood Site

Project implementation at the Beamer/Cottonwood site would involve the development of an 0.8-MW PV solar facility on approximately 2 acres of undeveloped land within a 6.53-acre site. Similar to the construction of the Grasslands site, there would be the potential for impacts to short-term water quality. Implementation of an SWPPP in compliance with the NPDES stormwater permitting program would ensure that runoff associated with short-term construction activities of the

Beamer/Cottonwood Site would not contribute to the degradation of water quality in downstream waterways. Impacts would be reduced to a level of less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

Grasslands Site

No mitigation is necessary.

Beamer/Cottonwood Site

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Long-Term Water Quality

Impact HYD-2:	**Operational activities associated with the proposed project would not have the potential to degrade water quality in downstream water bodies.**

Impact Analysis

This impact addresses checklist items a), e), and f) in the context of long-term water quality impacts from operational activities.

Grasslands Site

The project site currently does not contain any impervious surfaces. Development of the PV facility would require the installation of impervious surfaces consisting of concrete footings or pads for the inverters, transformers, and other electrical equipment. Construction of the environmental education center and park host site would result in the addition of 2,500 square feet of impervious surface coverage on the project site. However, the majority of the site, including internal roadways, would be maintained as pervious surface areas. As such, the project would result in minimal amounts of impervious surface areas that would generate stormwater that could potentially carry pollutants to downstream waterways. Furthermore, the existing drainage pattern of the site would not be altered and any stormwater created would be redirected to percolate onsite. No offsite discharge of stormwater is proposed.

Operational activities would consist of equipment maintenance, panel inspection, site inspection, and operation of the environmental education center. Impacts related to water quality or waste discharge from these activities are not anticipated for operation or maintenance activities associated with the project because of the minimal area of impervious surface. Water used to wash the solar panels and establish screening vegetation would run off and be absorbed by onsite vegetation and soils. Therefore, operational activities associated with the proposed project would not have the potential to degrade water quality in downstream and impacts would be less than significant.

Beamer/Cottonwood Site

Project implementation at the Beamer/Cottonwood site would include the development of an 0.8-MW PV solar facility on approximately 2 acres of undeveloped land within a 6.53-acre site. Development of the PV facility would require the installation of impervious surfaces consisting of concrete footings or pads for the inverters, transformers, and other electrical equipment. However, the majority of the site including internal roadways would be maintained as pervious surface areas. Furthermore, the existing drainage pattern of the site would not be altered.

No offsite discharge of stormwater is proposed. Operational activities would consist of equipment maintenance, panel inspection, and site inspection. Impacts related to water quality or waste discharge from these activities are not anticipated for operation or maintenance activities associated with the project because of the minimal area of impervious surface. Water used to wash the solar panels and establish screening vegetation would runoff and be absorbed by onsite vegetation and soils. Therefore, operational activities associated with the proposed project would not have the potential to degrade water quality in downstream and impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

Grasslands Site

No mitigation is necessary.

Beamer/Cottonwood Site

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Groundwater

Impact HYD-3:	**The proposed project would not deplete groundwater supplies or substantially interfere with groundwater recharge.**

Impact Analysis

This impact addresses checklist item b) in the context of potential impacts on groundwater supplies and recharge.

Grasslands Site

Implementation of the proposed project would require limited amounts of water supply during construction and operation. During project construction, the primary use of water would be for dust control. Water may also be required to moisture condition the soils for proper compaction at roads and foundations. The estimated construction-related water demand is less than 40 acre-feet, although actual demand may vary by several acre-feet, depending on the season that construction work occurs.

During operation, water usage would be limited to panel washing, establishment of onsite screening vegetation, and potable water supplied to the park host site. Each is discussed below.

Water used for panel washing would be provided by a contracted service provider to the County. During operation of the proposed project, the PV panels would be washed two times per year. Approximately 6,848 gallons of water (0.50 gallon per panel x 13,696 panels = 6,848 gallons) per washing cycle would be needed at the Grasslands site. Since the water used would either soak into the soil or evaporate, no wastewater would be generated during panel washing.

Water used for the establishment of low-water-use native plants surrounding the site would be provided either by a contracted water supplier and trucked onsite or from a temporary irrigation system connected to the existing well within the developed portion of Grasslands Regional Park. Limited amounts of water will be used to establish a healthy root structure until such time the plants are self-sufficient.

Potable (drinking) water would be provided to the park host site through a permanent connection to the existing well. This water connection would also be utilized for the EEC should a drinking fountain be installed. The existing onsite well is currently utilized by the existing park host and has been used in the past for irrigation. The well produces 425 gallons per minute (25,500 gallons per hour) and is approximately 300 feet deep. The current park host uses approximately 5 gallons per hour during peak operation, and it is assumed that the proposed park host would use about the same. Should irrigation water be used from the existing well, it is estimated that approximately 12 gallons per minute (720 gallons per hour) would be required (Santos, pers. comm.) Because of the existing minimal use of the well and its available yield, sufficient water would be available and would not be expected to deplete groundwater supplies.

The environmental educational center would not include a restroom facility onsite and therefore would not require the use of groundwater beyond the possible drinking fountain. Although the County may determine at a future date that additional or permanent restroom facilities are warranted at the Grasslands site, the location, permitting, design requirements, and groundwater use of any future permanent facilities would be determined at that time.

The site is not an identified groundwater recharge site or located adjacent to such a designated site. Stormwater on the project site would continue to percolate into the ground much as it does under current conditions. In summary, impacts related to interfering with groundwater recharge or depletion of groundwater supplies would be less than significant.

Beamer/Cottonwood Site

The Beamer/Cottonwood site would not require the use of groundwater. During project construction, the primary use of water would be for dust control. Water may also be required to moisture condition the soils for proper compaction at roads and foundations. The estimated construction-related water

demand is less than 20 acre-feet, although actual demand may vary by several acre-feet, depending on the season that construction work occurs. During operation, water usage would be limited for landscaping and panel washing. Both would be provided by a contracted service provider to the County. During the life of the proposed project, the solar PV panels would be washed two times per year. Approximately 1,184 gallons of water (0.50 gallon per panel x 2,638 panels = 1,184 gallons) per washing cycle would be needed at the Beamer/Cottonwood site. Since the water used would either soak into the soil or evaporate, no wastewater would be generated during panel washing. In addition, low-water-use native plants will be installed along the project site boundary as discussed in the Section 2, Project Description. Limited amounts of water will be used to establish a healthy root structure until the plants are self-sufficient.

Similar to the Grasslands site, the Beamer/Cottonwood site is not identified as a groundwater recharge site or located adjacent to such a designated site. Stormwater on the project site would continue to percolate into the ground much as it does under current conditions. Therefore, impacts related to interfering with groundwater recharge or depletion of groundwater supplies would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

Grasslands Site

No mitigation is necessary.

Beamer/Cottonwood Site

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Flooding

Impact HYD-4:	**The proposed project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.**

Impact Analysis

This impact addresses checklist item i) in the context of risk related to failure of a levee or dam.

Grasslands Site

The Yolo County General Plan indicates that portions of Yolo County are located downstream of dams or are protected by levees along the Sacramento, Feather, and American Rivers. Figure HS-5 of the Yolo County General Plan indicates that the Grasslands site is located within a Dam Inundation Zone. The Grasslands site is located approximately 20 miles from the Monticello Dam on Putah

Creek. The dam is owned, operated, and maintained by Solano Irrigation District and is routinely inspected and managed to reduce the potential for dam failure (Yolo County 2008). In the unlikely event of inundation, the Grasslands site environmental education center would be closed for use. Thus, impacts related to dam failure would be less than significant.

Beamer/Cottonwood Site

The Yolo County General Plan indicates that portions of Yolo County are located downstream of dams or are protected by levees along the Sacramento, Feather, and American Rivers. Figure HS-5 of the Yolo County General Plan indicates that the Beamer/Cottonwood site is located within a Dam Inundation Zone. According to the Woodland General Plan the Beamer/Cottonwood site is located within an area that could potentially experience up to eight feet of flooding in the unlikely event of failure of the Indian Valley Dam, located on the North Fork of Cache Creek. However, the dam is routinely inspected and managed to reduce the potential for dam failure. As such, impacts related to dam failure would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

Grasslands Site

No mitigation is necessary.

Beamer/Cottonwood Site

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.