

Section 2.5

Hydrology and Water Quality

This section describes the hydrology and water quality conditions in the County and the regulatory framework applicable to hydrology and water quality. It also assesses the potential impacts on hydrology and surface and groundwater quality that could result from project implementation, and presents mitigation measures that would reduce potentially significant impacts.

Water resources can be classified into two categories: (1) surface water, which collects in streams, rivers, lakes, and reservoirs; and (2) groundwater, which resides in subsurface aquifers. This section deals with surface water. Groundwater resources are discussed in Section 2.8, *Water Supply and Groundwater*. Topics related to floods, levees, or dams, and seiche, tsunami, or mudflow are discussed in Chapter 3, *Environmental Effects Found Not to be Significant*.

2.5.1 Existing Conditions

2.5.1.1 Surface Water Hydrology

Surface water bodies in the County (e.g., estuaries, lagoons, bays, lakes, reservoirs, rivers, and creeks) capture the flow of the region's water runoff, often combining natural runoff with imported water. Many of these water bodies support natural habitat and recreational areas, and serve as storage reservoirs for the County's water supply.

The San Diego region is divided into two hydrologic basins (the South Coast Basin and the Colorado River Basin) by the northwest-trending Peninsular Range. The County is divided into two hydrologic regions: (1) the San Diego Hydrologic Region, which drains in a westerly direction toward the Pacific Ocean and encompasses most of the County, parts of southwestern Riverside County, and southwestern Orange County; and (2) the Colorado Hydrologic Region, which drains in an easterly direction toward the desert and Colorado River basin.

Watersheds are areas into which surface runoff, streams, creeks, and rivers drain. Within the San Diego Hydrologic Region, the South Coast Basin supports 11 major watersheds (or hydrologic units) and is governed by the San Diego Regional Water Quality Control Board (RWQCB) (Region 9). The Carlsbad, San Dieguito, Penasquitos, San Diego, Pueblo San Diego, Sweetwater, and Otay watersheds are located entirely within the San Diego region. Portions of the San Juan and Santa Margarita watersheds are shared with Orange and Riverside Counties, and the Tijuana watershed with Mexico (San Diego Association of Governments 2015). Within the Colorado Hydrologic Region, the Colorado River Basin supports portions of five watersheds and is governed by the Colorado RWQCB (Region 7). The Anza-Borrego, Clark, Whitewater, West Salton, and Imperial watersheds are in the eastern part of the County. These watersheds are shown on Figure 2.5-1.

From north to south, the 13 principal stream systems include Aliso Creek, San Juan Creek, San Mateo Creek, San Onofre Creek, Santa Margarita River, San Luis Rey River, San Marcos Creek, Escondido Creek, San Dieguito River, San Diego River, Sweetwater River, Otay River, and the Tijuana River (San Diego RWQCB 2011). Major lakes and lagoons include Lake O'Neil, Santa Margarita Lagoon, Lake Henshaw, Buena Vista Lagoon, Aqua Hedionda Lagoon, Batiquitos Lagoon, Lake Wohlford, San Elijo Lagoon, Lake Sutherland, Lake Hodges, San Dieguito Lagoon, Los Penasquitos Lagoon, Lake Jennings,

Lake Murray, Palo Verde Lake, Morena Lake, and Barrett Lake (County of San Diego 2007d). Stream systems and their receiving waters (lakes, bays, lagoons, and ocean) support a variety of beneficial uses that are designated in the San Diego Region Basin Plan. *Beneficial uses* are defined as those water uses necessary for the survival and well-being of people, plants, and wildlife (San Diego RWQCB 1994). These uses include clean and available drinking water; agricultural, commercial, industrial, recreational, residential, and military uses; and wildlife and habitat uses.

Most of the region's streams have perennial and ephemeral segments due to the seasonal nature of rainfall and the relatively low yearly rainfall, or due to effects from dams or other human-made blockages. Surface water impoundments capture flow from nearly all the region's major streams, and runoff from the County's watersheds supplies 25 reservoirs with a combined capacity of about 747,000 acre-feet (San Diego County Water Authority 2015; San Diego RWQCB 2011). Local rain runoff into these reservoirs contributes to the water supply for the region. The reservoirs also store water imported from the Colorado River and northern California. A substantial amount of the water delivered to homes and businesses in the City's service area is water that has been impounded in the reservoirs. County reservoirs are shown on Figure 2.5-2.

2.5.1.2 Surface Water Quality

Several water body segments in San Diego County are on the federal Clean Water Act (CWA) Section 303(d) list for impaired water quality (see Section 2.5.2.1, *Federal Regulations*), and any contribution of substantial additional pollutants may further impair the receiving water body. A total of 72 inland surface water bodies are currently designated as not attaining applicable water quality objectives within the San Diego Hydrologic Region (San Diego Integrated Regional Water Management Plan 2013). Section 303(d)-listed impaired inland surface waters are found in each of the region's watersheds. Additionally, each of the region's watersheds contains at least one coastal water or beach segment that is currently listed as impaired. Examples of the types of pollutants/stressors for which these water bodies are impaired include sedimentation, total dissolved solids, bacteria indicators, fecal coliform, phosphorus, cadmium, copper, and diazinon (County of San Diego 2007e).

Water Quality Contaminants

Common water quality contaminants in the region are described below (County of San Diego 2011a).

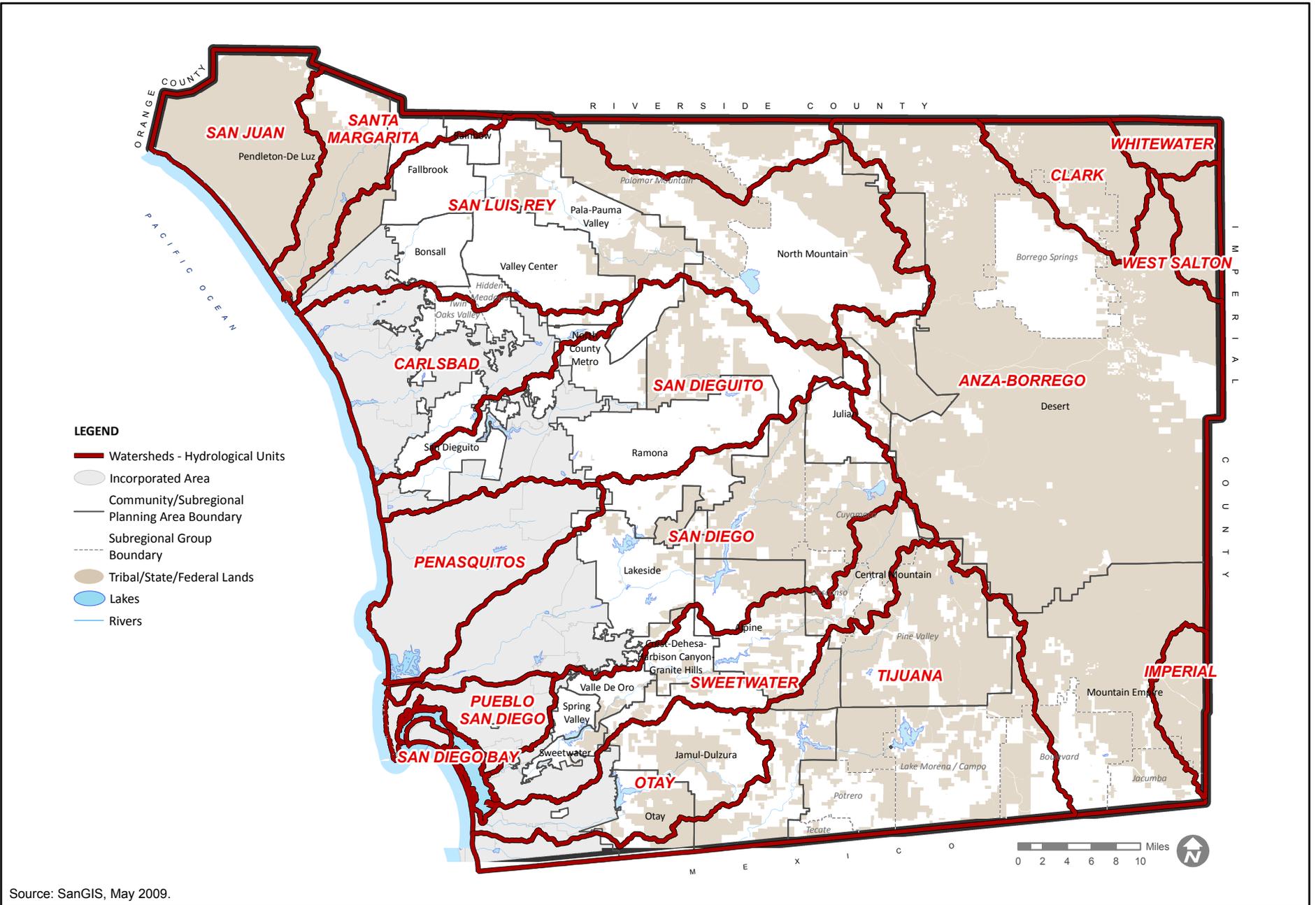
Metals

Metals can affect surface water quality by accumulating in sediments and fish tissues. This poses risks of toxicity such as lowering the reproductive rates and life spans of aquatic animals and animals up the food chain. Metals can also alter photosynthesis in aquatic plants and form deposits in pipes. Metals in urban runoff can result from automobile use, industrial activities, water supply infrastructure corrosion, mining, or pesticide application. Atmospheric deposition can also contribute metals to water bodies.

Nutrients (Phosphorous and Nitrogen)

High levels of nitrogen and phosphorus in surface waters can produce harmful algal blooms. In turn, these blooms can produce dead zones in water bodies where dissolved oxygen levels are so low that most aquatic life cannot survive. Typical sources of nutrients in surface waters are improper

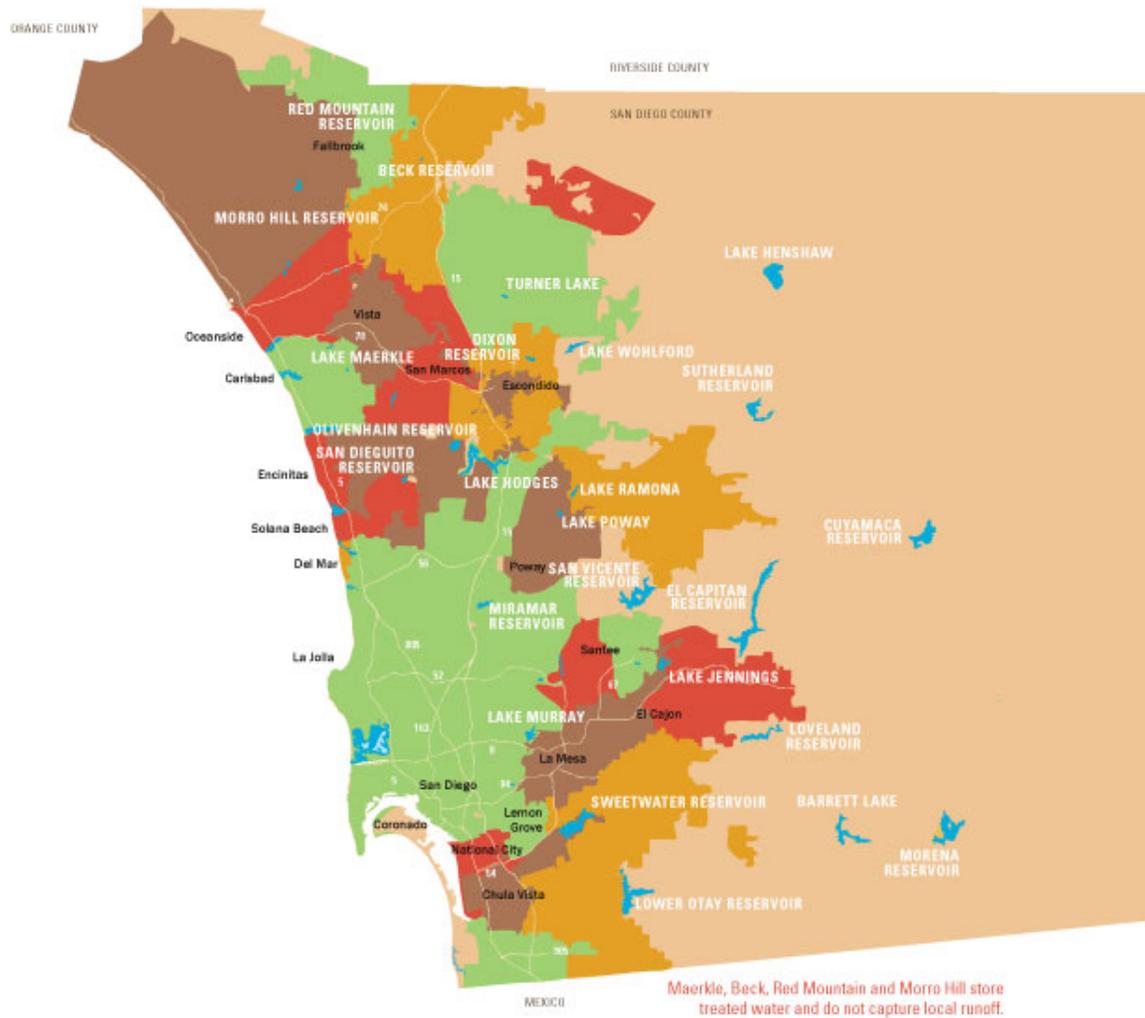
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Source: SanGIS, May 2009.



Figure 2.5-1
Watersheds
County of San Diego Agriculture Promotion Program



Source: San Diego County Water Authority, January 2016.



**Figure 2.5-2
Reservoirs
County of San Diego Agriculture Promotion Program**

fertilizer usage (both agricultural and residential), discharges from failing or improperly maintained septic systems, and accidental sanitary sewer overflows. Nitrate, which is composed of nitrogen and oxygen, occurs naturally in soil and water. Nitrate is an important constituent in fertilizers used for agricultural purposes and is present in human and animal wastes.

Petroleum Products (Gasoline, Diesel, Oil, and Grease)

Gasoline, diesel, oil, and grease are characterized as high molecular weight organic compounds. Primary sources of gasoline, diesel, oil, and grease contaminants are motor products from leaking vehicles and underground storage facilities and tanks. Petroleum hydrocarbon products commonly found in gasoline, including benzene, toluene, ethylbenzene, xylene, and methyl tert-butyl ether (MTBE), are considered common petroleum contaminants to surface water and groundwater. Benzene is used as a gasoline additive and industrial solvent and is used in the production of drugs, plastics, rubber, and dyes. Toluene is widely used as an industrial feedstock and as a solvent. Ethylbenzene is used in the production of plastic, while xylene is used as a solvent in the printing, rubber, and leather industries. MTBE is a gasoline additive that has historically caused groundwater contamination from spills or leaks at gas stations. Introduction of petroleum pollutants to water bodies is typically due to the widespread use and application of these products in municipal, residential, commercial, industrial, and construction areas.

Additional sources of oil and grease include esters, oils, fats, waxes, and high molecular-weight fatty acids. Introduction of these pollutants to water bodies is typical due to the widespread use and application of these products in municipal, residential, commercial, industrial, and construction areas. Elevated oil and grease content can decrease the aesthetic value of a water body, as well as its water quality.

Pathogens (Bacteria and Viruses)

Water contaminated with pathogens such as bacteria and viruses can introduce diseases to humans and animals. This can have significant public health implications, particularly related to water used for drinking, recreation such as swimming and surfing, and shellfish harvesting. Common sources of pathogens in surface water include wild and domesticated animals, urban and agricultural activities, and accidental sanitary sewer overflows.

Pesticides and Herbicides

Pesticides and herbicides can enter surface water and groundwater from both agricultural and urban areas. Typical impacts include accumulation in sediments and bioaccumulation in the food chain. Pesticides and herbicides can be toxic to both aquatic life and humans.

Sediments

Increased sedimentation, over and above the amount that enters the water system by natural erosion, can cause many adverse impacts on aquatic organisms, water supply, and wetlands. Sedimentation can decrease transmission of light, which affects plant production and leads to loss of food and cover for aquatic organisms. It can change behavioral activities (nesting, feeding, mating), and adversely affect respiration, digestion, and reproduction. Contaminants and toxic substances can also be transported in sediments. Sediments can damage water treatment equipment, increasing treatment costs. They can reduce reservoir volume and flood storage and increase peak discharges.

Total Dissolved Solids

Total dissolved solids (TDS) refer to the total concentration of all minerals, salts, metals, cations, or anions that are dissolved in water. TDS is composed of inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonate, carbonate, chloride, and sulfate) and some small amounts of organic matter that are dissolved in water. Increased salts in regional freshwater resources from mining, urban runoff, and construction can create stressful environments and even destroy habitat and food sources for wetland animals in aquatic and wetland habitats, as well as favoring salt-tolerant species; reduce the quality of drinking water; and may cause skin or eye irritations in people. An elevated TDS concentration is not a health hazard; however, it can cause the water to have a salty or brackish taste, and to be corrosive, and results in scale formation on pipes, pumps, water heaters, etc. Because of the seasonal nature of precipitation within the San Diego region, surfacing groundwater and runoff from applied water (agricultural and urban) represent the primary contributors to dry season stream flows. The interchange between surface water and groundwater, and the extreme seasonal variability of flow, evaporation, and water quality in San Diego County all contribute to a wide range of TDS in the region's surface waters. It is also of note that much of the water imported to the San Diego region is relatively high in TDS content.

2.5.1.3 Groundwater Quality

Groundwater obtained from San Diego County aquifers has traditionally been of high quality. However, naturally occurring and, more recently, man-made sources of contamination have adversely affected the groundwater quality in localized areas. The most common man-made sources of groundwater contamination including leaking underground fuel tanks, sewer and septic systems, agricultural applications, and facilities producing animal wastes. The most common contaminants in groundwater within San Diego County include elevated nitrate levels, naturally occurring radionuclides, TDS, and bacteria. Groundwater contaminants of concern that may result from agricultural operations may include: herbicides, pesticides and other complex organics; petroleum products including MTBE and volatile organic compounds; and metals.

2.5.1.4 Soil Erosion

As discussed above under *Sediments*, soil erosion can lead to water quality problems associated with increased turbidity and sedimentation. Soil erosion is dependent on a number of factors, such as soil property, level of force, and landscape characteristics. Erosion is a natural process caused by water, wind, mechanical, or chemical forces acting on exposed natural landforms. This section describes erosion by water.

Soils and sediment are composed of small pieces of decomposed rock material such as sand, gravel, loam, clay, or silt that also contain varying amounts of organic materials. Erosion removes soil, sediment, and rock from exposed areas and transports the resulting topsoil and sediment. The results include spreading of contaminants and the reduced ability of soil to store water and support plant growth, thereby reducing its ability to support biodiversity. Eroded materials fill reservoirs, ponds, and drainage ditches and silt up harbors, streams, and rivers.

Measuring Soil Erosion

The rate of erosion is dependent on the type of material that is eroded, the type and amount of erosive forces, and the shape of the landform involved. Soils have unique properties that make them more or less susceptible to erosion. For example, soil aggregate material such as very fine sand, silt,

clay, and organic matter can be easily removed by raindrop splash and runoff water; greater raindrop energy or runoff amounts might be required to move the larger sand and gravel particles. The type and amount of erosional force affects the erosional rate and is primarily affected by the duration and intensity of a precipitation event and by the slope of the site.

Runoff occurs whenever excess water on a slope cannot be absorbed into the soil or trapped on the surface. The amount of runoff can be increased if infiltration is reduced due to soil compaction. Runoff from agricultural land may be greatest during spring months when soils may be saturated and vegetative cover is minimal.

The U.S. Department of Agriculture's *Soil Survey for the San Diego Area* conducted in 1973 rated and classified each soil's level of erodibility typical of that class. A rating of slight, moderate, or severe was applied to each classification based on the criteria shown in Table 2.5-1. The table identifies four factors that affect the erodibility of a soil type. Note that climate, plant cover, and physiographic features are not a part of the rating system for erodibility as these factors vary independent of the soil classification type (County of San Diego 2007e). Most of the existing agricultural use in San Diego County occurs in non-prime soils. San Diego County has generally steep terrain and erodible soils, and low rankings generally result from the importance of slope and erodibility in the formulas that determine the soil ratings (County of San Diego 2002).

2.5.1.5 Stormwater Drainage Systems

Stormwater drainage systems convey urban runoff and are related to water quality conditions. These systems are designed to prevent flooding by transporting water away from developed areas. A vast amount of the unincorporated San Diego area is rural land that does not support or require stormwater drainage facilities. In more rural and remote areas stormwater drainage facilities are mainly limited to roadside ditches and culverts. In contrast, more developed areas have a range of stormwater drainage facilities such as storm drains, concrete drainage pipes, improved channels, culverts, gutters and ditches, and detention basins.

Changes to stormwater flows (such as increased volume or altered paths) can cause siltation, flooding, and/or erosion, which in turn can lead to property loss and environmental damage. Unfiltered and untreated stormwater can contain a number of pollutants that may eventually flow to surface waters. Stormwater discharges that enter the receiving waters can be polluted by either point sources or non-point sources. Point sources are defined as water pollution coming from a single point, such as a sewage-outflow pipe. Non-point sources are defined as pollution discharged over a wide land area, not from one specific location (U.S. Geological Survey 2015a).

2.5.2 Regulatory Setting

Hydrological resources and water quality conditions are subject to regulatory oversight at three levels: federal, state, and regional/local.

2.5.2.1 Federal Regulations

Federal Water Pollution Control Act (Clean Water Act)

Increasing public awareness and concern for controlling water pollution led to enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the CWA. The CWA established basic guidelines for regulating discharges of

pollutants into the waters of the United States, and requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA (U.S. Code, Title 33, Section 1251 et seq.) in the following ways.

- **Section 401** requires an application for a federal permit, such as for the construction or operation of a facility that may result in the discharge of a pollutant, to obtain certification of those activities from the state in which the discharge originates. This process is known as water quality certification. For projects in the County, the RWQCB issues Section 401 permits.
- **Section 402** established the National Pollutant Discharge Elimination System (NPDES) to control water pollution by regulating point sources that discharge pollutants into waters of the United States. In the State of California, the U.S. Environmental Protection Agency (EPA) has authorized the State Water Resources Control Board (SWRCB) permitting authority to implement the NPDES program. In general, the SWRCB issues two baseline general permits: one for industrial discharges and one for construction activities. The Phase II Rule that became final on December 8, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than 1 acre.
- **Section 404** established a permitting program to regulate the discharge of dredged or fill material into waters of the United States. The definition of waters of the United States includes wetlands adjacent to national waters. This permitting program is administered by the U.S. Army Corps of Engineers and is enforced by EPA.
- **Section 303(d)** requires SWRCB to develop a list of water quality limited segments for jurisdictional waters of the United States. The RWQCBs are responsible for establishing priority rankings and developing action plans, referred to as total maximum daily loads (TMDLs), to improve the water quality of waterbodies included in the 303(d) list. The most recent 303(d) list approved by EPA is from 2010. The list includes pollutants causing impairment to receiving waters or, in some cases, the condition leading to impairment.

Federal Maximum Contaminant Levels

To protect public health related to known contaminants in drinking water supplies, EPA sets the highest level of a contaminant for a range of contaminants, including microorganisms, disinfectants and disinfection byproducts, and chemicals, among others. There are two tiers: primary and secondary standards. National Primary Drinking Water Regulations (primary standards) are enforceable standards. National Secondary Drinking Water Regulations (secondary standards) are guidelines related to contaminants that could cause aesthetic effects (such as taste, odor, or color) or cosmetic effects (such as skin or tooth discoloration).

National Pollutant Discharge Elimination System

EPA has delegated responsibility for implementing portions of the CWA to SWRCB and the RWQCBs, including water quality planning and control programs, such as the NPDES program. The NPDES program is based on permits designed to implement the CWA; these permits apply to various activities that generate pollutants with the potential to impact water quality, as well as stormwater discharges associated with urban areas and certain industrial activities. EPA has developed a two-phased NPDES permitting program (Phase I and Phase II) that requires cities and other local entities to obtain municipal stormwater NPDES permits that mandate the implementation of stormwater management programs, including methods to reduce pollutants in stormwater runoff.

Phase I regulates stormwater discharges from medium and large municipal separate storm sewer systems (MS4s), construction activities involving areas 5 acres or larger (or less than 5 acres if part of a common plan of development or sale), and industrial activities. Phase II extends the regulations to stormwater discharges from small MS4s and construction activities that disturb areas equal to or greater than 1 acre of land (or less than 1 acre if part of a common plan of development or sale). Through the use of NPDES permits, Phase II also expands the Phase I program by requiring operators of MS4s in urbanized areas and operators of small construction sites to implement programs and practices to control polluted stormwater runoff.

2.5.2.2 State Regulations

Section 303(d) List of Water Quality Limited Segments

Section 303(d) of the CWA requires states to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits. These are referred to as *impaired* water bodies. The 2010 CWA 303(d) List of Water Quality Limited Segments (California Environmental Protection Agency 2015) classifies the impaired waterbodies located in the County. The complete 2010 EPA-approved list for the San Diego Region is available from the San Diego RWQCB at the following web address:

http://www.swrcb.ca.gov/sandiego/water_issues/programs/303d_list/index.shtml.

Once listed as impaired, water body segments are targeted for a TMDL restoration plan to improve water quality. A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water. TMDLs are adopted as amendments to the Basin Plan (San Diego RWQCB 2011).

Waste Discharge Requirements

In general, the State's Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 [Non 15] Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the CWA. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to Section 20230 of Title 27.

One of the core regulatory elements is the Irrigated Lands Regulatory Program, which regulates discharges from irrigated agricultural lands to prevent agricultural discharges from impairing the waters that receive these discharges. This is done by issuing WDRs or conditional waivers of WDRs (Orders) to growers. These Orders contain conditions requiring water quality monitoring of receiving waters and corrective actions when impairments are found. There are about six million agricultural acres enrolled in the Irrigated Lands Regulatory Program and approximately 40,000 growers (SWRCB 2015b).

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7) provides ultimate authority to the SWRCB to adopt, review, and revise policies for all waters of the State (including both surface waters and ground waters). Nine RWQCBs were established to provide oversight on water quality issues at a regional and local level. Section 13170 of the California Water Code also authorizes SWRCB to adopt water quality control plans on its own initiative. The Water Quality

Control Plan for the San Diego Basin (Region 9) is designed to preserve and enhance the quality of water resources in the San Diego Region for the benefit of present and future generations. The purpose of the plan is to designate beneficial uses of the Region's surface waters and ground waters, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives.

Streambed Alteration Agreement

Sections 1601–1603 of the California Fish and Game Code require an agreement between the California Department of Fish and Wildlife and a public agency proposing to substantially divert or obstruct the natural flow or affect changes to the bed, channel, or bank of any river, stream, or lake. The agreement is designed to protect the fish and wildlife values of a river, lake, or stream.

2.5.2.3 Regional/Local Regulations

San Diego Regional Water Quality Control Board Basin Plan

The San Diego RWQCB Basin Plan was approved by SWRCB in 1994 and was most recently revised in 2011. The RWQCB designates beneficial uses in the Basin Plan under California Water Code Section 13240. Beneficial uses are defined as water uses necessary for the survival or well-being of humans, plants, and wildlife. Designated beneficial uses in inland surface waters, coastal waters, reservoirs and lakes, and groundwater in the County are identified in Tables 2-2 through 2-5 of the Basin Plan.

San Diego Regional Water Quality Control Board Order No. R9-2007-0104, Conditional Waiver No. 4

Conditional Waiver No. 4 is for discharges from agricultural and nursery operations, which contain pollutants that can percolate to groundwater or runoff to surface waters. Discharges from agricultural and nursery operations include discharges resulting from growing operations, irrigation return flows, and stormwater runoff that can transport pollutants from agricultural and nursery operations to surface waters and groundwater. Agricultural and nursery operations that comply with the waiver conditions are not expected to pose a threat to the quality of waters of the State.

The following types of discharge are not regulated or authorized under WDRs and may be eligible for a Conditional Waiver No. 4.

- Discharges of plant crop residues to land
- Discharges of stormwater runoff
- Discharge/application of amendments or mulches to soil
- Discharges of agricultural irrigation return water
- Discharges of nursery irrigation return water

Conditional Waiver No. 4 was adopted in October 2007 and expired in February 2014. The San Diego RWQCB is developing *Tentative General Waste Discharge Requirements for Discharges of Wastes from Commercial Agricultural and Nursery Operations within the San Diego Region* (General Agricultural Order) to replace the expired Agricultural Waiver. The San Diego RWQCB is tentatively scheduled to consider adoption of the Tentative General Order in 2016. There were 50,000

agricultural acres and between 2,200 and 2,500 agricultural operations enrolled (SWRCB 2015c; Pulver pers. comm.).

San Diego Regional Water Quality Control Board Regional MS4 Permit

The Regional MS4 Permit is used to regulate discharges from Phase I MS4s in the San Diego Region. The Regional MS4 Permit covers 39 municipal, county government, and special district entities (referred to jointly as Copermittees) located in San Diego County, southern Orange County, and southwestern Riverside County who own and operate large MS4s which discharge storm water (wet weather) runoff and non-storm water (dry weather) runoff to surface waters throughout the San Diego Region (San Diego RWQCB 2015). Under this permit, each municipality must develop a stormwater management program designed to control the discharge of pollutants into and from the MS4 (or from being discharged directly into the MS4). The purpose is to protect local water bodies since storm drains typically discharge their water into streams, bays, and/or the ocean without treatment. Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100, presents guideline requirements for the control of pollutants resulting from stormwater and urban runoff.

County of San Diego Code of Regulatory Ordinances, Sections 67.801–67.814, Watershed Protection, Stormwater Management, and Discharge Control Ordinance

The County Watershed Protection, Stormwater Management, and Discharge Control Ordinance (WPO) was adopted in March 2008 and revised in June 2015. The purpose of the WPO is to protect water resources and improve water quality by controlling the non-stormwater conveyance system and receiving waters, to require the use of management practices by the County and its citizens that will reduce the adverse effects of polluted runoff discharges on waters of the State, to secure benefits from the use of stormwater as a resource, and to ensure the County is compliant with state and federal law. The WPO establishes standards and requirements that are legally enforceable by the County within the County's jurisdiction. Projects that require a permit (e.g., Administrative Permit, Major Use Permit, Grading Permit) are required to demonstrate compliance with the WPO. Section 67.804, for example, specifically addresses waste discharge and prohibits the discharge of pollutants to the stormwater system unless permitted through the NPDES Program.

As part of the revised ordinance, priority development projects are required to incorporate Low Impact Development (LID) techniques. Adopted in 2008, the *LID Handbook* was provided to complement the WPO by providing guidance regarding LID techniques and practices. LID design considerations for proposed private projects may include the following: (1) draining runoff from impervious areas into pervious areas based on the capacity to treat/hold runoff; (2) designing pervious areas to receive and treat runoff by using swales, detention, and/or bioretention, and using amended soils to increase infiltration; (3) using porous pavements where appropriate; (4) conserving natural areas, trees, vegetation, and soils; (5) constructing streets, sidewalks, and parking areas to the minimum widths necessary for public safety, thereby retaining pervious areas; (6) minimizing the impervious footprint of the project and disconnecting impervious surfaces; (7) minimizing soil compaction (under planned green/open areas); and (8) minimizing disturbance to natural drainages.

County Code of Regulations Related to Groundwater Well Water Quality

Section 67.401 of the County Code of Regulations provides restrictions and regulations for wells. The standards in the code apply to the construction and maintenance of wells to ensure that groundwater will not be polluted or contaminated. Private drinking water wells require a permit from the County Department of Environmental Health. As part of this process, new wells are sampled for bacteriological constituents and nitrate.

For projects with poor groundwater quality, two mitigation measures have been identified by the County in addition to importing water to the project site. The first states that for projects where any constituent exceeds its primary maximum contaminant level and a discretionary permit requires a potable groundwater supply, mitigation could be implemented by providing a water treatment system that reduces impacts to below the maximum contaminant level. To ensure proper water treatment in accordance with the California Safe Drinking Water Act, the County requires discretionary permits that require treatment to form or merge with a water system regulated by the County Department of Environmental Health (up to 200 service connections) or the state (greater than 200 service connections). This ensures proper treatment of constituents and does not place the responsibility of treatment on private individuals. Although the County will allow point-of-use or point-of-entry treatment for contaminants in wells on existing legal lots, it will not approve discretionary permits for private wells dependent on water treatment. The second mitigation measure states that additional wells and testing can be conducted in an attempt to find onsite potable water. Drilling and testing additional wells is expensive and time-consuming, and there are no guarantees that the new well(s) will have a potable water supply (County of San Diego 2011a).

County of San Diego Grading Ordinance

The purpose of the Grading Ordinance is to combine regulations affecting the grading and clearing of land and activities affecting watercourses within the unincorporated parts of the County. Chapter 6 (Sections 87.601–87.608) of the ordinance covers watercourses and is intended to protect persons and property against flood hazards by identifying prohibited acts in watercourses and acts that are prohibited unless a permit is obtained. The ordinance requires that projects involving more than 200 cubic yards of grading, clearing, and/or removal of natural vegetation obtain a Grading Permit (see Section 1.5.1, *Matrix of Project Approvals/Permits*). Grading Permits are discretionary and require compliance with CEQA.

Pesticide Regulation Program

The County's Pesticide Regulation Program is the local program overseen by the County Agricultural Commissioner and Department of Agriculture, Weights, and Measures. Permits are required any time pesticides are applied to agricultural lands, whether by an owner/operator or a contracted entity. When applying for a permit, the applicant must provide information including the location and acreage of the property to be treated, and known locations nearby that could be adversely affected by the pesticide use such as lakes, waterways, and reservoirs. If the Agricultural Commissioner determines that the permit would likely cause a substantial adverse impact, the commissioner must determine if there is a feasible alternative (including no pesticide application) or a feasible mitigation measure that would substantially reduce the adverse impact. If there is no feasible alternative or mitigation measure, the commissioner must deny the permit. The Department of Agriculture, Weights, and Measures maintains a database of pesticide applications in the County

that includes the name and address of the applicant, date of application, crop type, and type of pesticide used.

San Diego County Hydrology Manual

The purpose of this manual is to provide a uniform procedure for flood and stormwater analysis within San Diego County. It provides a guide for policies and procedures based upon the science and data available to attain reasonable standardization of hydrology studies throughout the County.

San Diego County Drainage Design Manual

This manual establishes design standards and procedures for stormwater drainage and flood management facilities in San Diego County. These design standards and procedures provide guidance for jurisdictions in the selection, design, construction, and maintenance of stormwater drainage and flood management facilities.

2.5.3 Analysis of Project Effects and Determination of Significance

The proposed project consists of an amendment to the Zoning Ordinance related to accessory agricultural uses in unincorporated portions of the County over which the County has land use jurisdictions (see Section 1.4, *Project Description*, for further details). Specifically, the proposed project applies to properties where active agriculture exists within the County or properties where agricultural uses are allowed. During the Initial Study preparation and scoping process for this project, which considered potentially significant environmental impacts and involved a 30-day public comment period, it was determined that the proposed project would not result in a significant impact related to placing 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, or place within a 100-year flood hazard area structures that would impede or redirect flood flows. There would also be no potential for the proposed project to result in a significant impact related to exposing 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, or contributions to inundation by seiche, tsunami, or mudflow. As such, potential impacts related to flood hazards and inundation are not evaluated below. Further discussion is available in the Initial Study prepared for the proposed project, which is provided as Appendix B.

Three comment letters that are relevant to hydrology and water quality were received during the 30-day comment period. Eric March of Star B Buffalo Ranch & Hop Farm requested information on hydrology testing requirements. The City of San Diego indicated that water quality is of concern particularly because of the drinking water reservoirs that it owns in the County. The Cleveland National Forest indicated that water quality is of particular concern for the agency and requested that the EIR consider effects of intensified land uses on the forest.

2.5.3.1 Water Quality

Guidelines for the Determination of Significance

The following significance guidelines from Appendix G of the State CEQA Guidelines apply to both the direct and cumulative impact analyses. A significant impact would occur if the proposed project would:

- Violate any water quality standards or waste discharge requirements.
- Otherwise substantially degrade water quality.

Analysis

One of the primary objectives of the proposed project is to streamline and clarify the approval/permitting for accessory agricultural operations within the County, while ensuring compliance with local, state, and federal regulations where appropriate and utilizing sound management practices. This objective would provide increased opportunities for agricultural ventures and tourism that are accessory to existing agricultural operations. Thus, the proposed project would promote and encourage additional land use activities on active agricultural land throughout unincorporated San Diego County for such operations as microbreweries, cheese-making and dairy operations, onsite food production, mobile butchering, packing and processing, onsite retail horticulture sales, animal raising, roadside sales of agricultural products, agricultural tourism, and agricultural homestays. Although the action of amending the Zoning Ordinance would not directly result in hydrology and water quality impacts, the uses that it encourages may. These potential impacts can generally be grouped into two major categories—construction-related and operational impacts—which are discussed further in the following sections. Following this discussion, the anticipated impacts specific to the accessory agricultural operations promoted by the proposed project are addressed.

General Construction Related Impacts

The proposed project would promote and encourage additional land use activities on active agricultural land. An indirect result of this could be increased construction and development on some agricultural properties. Construction and development activities such as demolition, clearing and grading, excavation of undocumented fill materials, stockpiling of soils and materials, concrete pouring, painting, and asphalt surfacing, have the potential to result in additional sources of polluted runoff which could have short-term impacts on surface water quality. Typically, construction activities involve various types of equipment such as dozers, scrapers, graders, loaders, compactors, dump trucks, cranes, water trucks, and concrete mixers. During construction, soils are typically stockpiled outdoors, as are other construction materials for later use. Pollutants associated with such activities that may degrade water quality include soils, debris, other materials generated during demolition and clearing; fuels and other fluids associated with the equipment used for construction; paints; other hazardous materials; concrete slurries; and asphalt materials. Pollutants associated with construction would degrade water quality if they are washed by stormwater or non-stormwater into surface waters.

Sediment is often the most common pollutant associated with construction sites because of the associated earth-moving activities and areas of exposed soil. Sediment that is washed off site can result in turbidity in surface waters, which can affect aquatic species. In addition, when sediment is deposited into receiving water it can smother species, alter the substrate and habitat, and alter the

drainage course. Hydrocarbons such as fuels, asphalt materials, oils, and hazardous materials such as paints and concrete slurries discharged from construction sites could also affect aquatic plants and animals downstream. Debris and trash could be washed into existing storm drainage channels to downstream surface waters and could affect wildlife as well as aesthetic value. Contaminants could also enter the soil and contaminate groundwater through sediments that are transported by automobiles on roadways.

Under the NPDES Program, Stormwater Pollution Prevention Plans (SWPPPs) are prepared, and best management practices (BMPs) identified in the SWPPPs are implemented for construction sites greater than 1 acre, in order to reduce the occurrence of pollutants in surface water. Additionally, any construction requiring a Grading Permit from the County must, at a minimum, identify standard BMPs that would be implemented through a Storm Water Management Plan. These regulatory programs would ensure that most construction activities continue to implement BMPs that minimize disturbance, protect slopes, reduce erosion, and limit or prevent various pollutants from entering surface water runoff. While these measures help prevent degradation of water quality associated with most construction projects, smaller construction activities (or those conducted illegally without permits) would still have the potential to contribute pollutants such as soils, debris, and other materials in quantities that would exceed water quality standards and otherwise significantly degrade water quality.

Tilling of native or fallow land for agricultural production would be subject to the Grading Ordinance and would require an Administrative Permit for clearing if the area was not in agricultural production at least 1 of the previous 5 years. This permit is discretionary and is subject to review under both CEQA and the WPO. Among the many requirements that must be completed before an Administrative Permit can be issued is compliance with Part F.3, *Standards Applicable to Discretionary Permit Activities of the County Stormwater Standards Manual*. Part F.3 provides performance standards, including a list of BMP options, a number of which must be incorporated from the following categories: (1) erosion control, (2) sediment control, (3) offsite sediment control, (4) velocity reduction, (5) materials management, and (6) structural BMPs. However, land that was in agricultural production for at least 1 of the preceding 5 years is considered active agriculture and would not require a clearing permit.

General Operational Impacts

There are many potential sources of pollutants from normal uses of land, and, as the proposed project supports the expanded use of agricultural properties, it has the potential to increase pollutant-generating activities. Some of the standard pollutant sources are sediment discharge due to areas of land left bare; nutrients from fertilizers; household hazardous waste that is improperly disposed of, including heavy metals and organic compounds; trash and debris improperly disposed of; oil and grease; byproducts resulting from vehicle use, including heavy metals; bacteria and viruses; and pesticides from landscaping and agriculture. Generally, these constituents can be referred to as non-point source pollutants.

Increased use of agricultural properties as a result of the project would result in the contribution of non-point source pollution into surface and groundwater bodies. Although it is not expected that non-point source pollutants caused from the development associated with the proposed project would violate water quality standards, these constituents would be expected to otherwise degrade water quality.

Regulatory programs are in place to control non-point source pollutants. Projects that require discretionary review would be assessed for potential impacts, and those that have a greater potential to result in pollutants may be required to prepare post-construction stormwater management plans. Larger construction projects are also required to implement treatment BMPs that remove pollutants from stormwater discharges.

The County of San Diego WPO prohibits non-stormwater discharges and the discharge of pollutants from properties in the unincorporated areas of the County. The use of pesticides (which include herbicides, insecticides, fungicides, and rodenticides) in agricultural operations is regulated by the California Department of Pesticide Regulation. In the process of reviewing applications for pesticide use, the Department of Pesticide Regulation must determine either that no adverse impacts would result or that feasible mitigation would substantially reduce the adverse impacts. If there is no feasible alternative or mitigation measure, the pesticide application permit would be denied.

In addition, pursuant to the San Diego RWQCB Resolution No. R9-2007-0104 (Conditional Waivers), all agricultural operations in the County are required to implement BMPs to ensure that no pollutants leave the farm in irrigation or stormwater discharges, and are subject to enrollment, monitoring, and reporting requirements in the RWQCBs Conditional Waiver No. 4 (Resolution). The Resolution allows for two options for agricultural and nursery operations: (1) operations may conduct testing and reporting as a group, and (2) operations may act individually to submit plans and testing results directly to the RWQCB. The resolution applies to all future agricultural operations related to the proposed project because these uses are required to grow at least a portion of their products on the premises of the operation.

Despite all these programs, containment of pollutants to a property is not guaranteed, and the increased activities that will likely result from the proposed project would have potential to result in pollutant discharges.

Groundwater Quality Impacts

Groundwater contamination can result when man-made products such as gasoline, oil, and chemicals reach underground reservoirs, known as aquifers. When this occurs, groundwater may be rendered unsafe and unfit for human use, and the level of groundwater available for potable use would lower. The primary contaminants of concern that could leach into groundwater supplies as a result of agricultural operations would be from use of fertilizers, herbicides, pesticides, petroleum products, volatile organic compounds, and organic wastes.

Similar to surface water quality, potential contaminants from future accessory agricultural operations would be required to comply with regulatory programs in place that control non-point source pollutants. Projects that require discretionary review would be assessed for potential impacts, and those that have a greater potential to result in pollutants may be required to prepare post-construction stormwater management plans. Larger construction projects are also required to implement treatment BMPs that remove pollutants from stormwater discharges. Furthermore, future projects would be required to comply with the County of San Diego WPO and implement BMPs in accordance with the RWQCB's Conditional Waivers. These regulations restrict the pollutants and water that are discharged from any site and allow the RWQCB to enforce restrictions if necessary. Therefore, potential contaminants related to the proposed project are not anticipated to reach groundwater supplies and would not significantly contribute to groundwater quality issues.

Impacts on groundwater quality would be less than significant.

Accessory Agricultural Use Impacts

This section is intended to provide a connection between the general hydrology and water quality impacts that are described above and the specific activities that might be anticipated to occur with the accessory agricultural uses covered by the proposed project.

Agricultural Homestay

Preparation for an agricultural homestay operation could involve an existing home with extra rooms and no ground disturbance, or it could include ground-disturbing activities such as grading and tilling land to increase usable area on a property, adding signage, and expanding buildings to accommodate additional people. Most of these construction activities would trigger building or grading permits and would require BMPs to address construction water quality impacts. However, some smaller improvement projects would be allowed without permits and would not have review for water quality protection measures. Potential pollutants associated with operation of a homestay would be those typical of residential and agricultural properties such as trash and debris, household chemicals, and oils and grease from visiting vehicles and other equipment. As discussed under *General Operational Impacts* above, these sources of pollutants are generally unregulated, with the exception of the WPO, which prohibits the discharge of any pollutants.

Agricultural Stores

The proposed project would make the process for having an agriculture store less restrictive. Ordinance setbacks (Section 4810), commercial building codes, and Department of Environmental Health compliance would still be required, which would help guarantee such stores are still in compliance with building and health code requirements. The implementation of large and small agricultural stores could increase the amount of impervious building coverage in the unincorporated County but would typically require building permits and a Minor Storm Water Management Plan (SWMP). As with agricultural tourism activities, increased visitors and associated pollutants would be expected.

Agricultural Tourism

Agricultural tourism activities are similar to agricultural homestays in that they can occur within the footprint of existing buildings or outside on open farmland, and operation could include adding signage, expanding or altering buildings, and demolition to accommodate additional people. However, in the case of agricultural tourism, the expectation is that the operation would be attracting a greater number of visitors. Therefore, from a construction perspective there may be higher demand for more usable area thus necessitating larger construction projects. On the operational perspective, more visitors generally means more vehicles and people, which can increase the potential for their associated pollutants such as trash, debris, oils, and grease.

Animal Raising

The proposed project would amend the current animal schedule to allow certain animal raising projects under a less restrictive administrative permit. As such, it is likely the proposed project would cause an increase of animals on agricultural lands, which would subsequently increase animal waste, which could introduce sources of bacteriological contamination and elevated nitrates.

Aquaponics

Aquaponics would be allowed under Section 6913 of the Zoning Ordinance under a Specialty Animal Raising project. Aquaponics would allow for fish farming in a symbiotic fish tank-like environment and could involve ground disturbance during construction of a building to house the aquaponics components. Such a building would require a building permit from the County and at a minimum would trigger the requirements for a Minor SWMP. Aquaponics operate in a closed loop system; therefore, the potential for non-stormwater discharges is low. Additionally, as the operation would primarily consist of a combination of growing plants and raising fish, it would not involve pollutants in types or quantities that would be of concern when compared to other agricultural operations.

Creameries/Dairies

Implementation of the proposed creamery/dairy uses could result in individual development projects involving land clearing to support up to a 4,000-square-foot building; construction of ancillary parking areas, driveways, fences, and outdoor seating; and an increase in site activity related to additional visitors and new employees. Depending on the size of the subject lot and the desired facility size, a creamery/dairy could propose either the construction of a new building or alteration of an existing building to house the equipment for a creamery. Soil disturbance resulting from soil clearing, grading, cut and fill operations, and general ground disturbance could increase the potential for erosion, sedimentation, and non-permitted discharges of materials during construction. However, most construction activities would require a building or grading permit and at a minimum would trigger the need for a Minor SWMP. Increased visitation to such a facility would be similar to agricultural tourism.

Fishermen's Markets

Fishermen's markets would allow the sale of the aquaponically raised fish by right on public property, school property with a school use or within C31, C32, C34, C35, C36, C37, C40, C42, or S88 zones. No construction would be involved with the fishermen's markets. The biggest water quality consideration with fishermen's markets (or any open air market) is with trash and debris generated by patrons and vendors, improper disposal of water or melted ice, or improper washing of the usable area. Organizers of such markets are reminded of the WPO prohibition of these activities and pollutant discharges from their events if they need to obtain a special event permit.

Microbreweries, Cideries, and Micro-distilleries

Agricultural microbrewery, cidery, and micro-distillery uses could include the future development of buildings to support structures up to 5,000 square feet in size. For smaller operations that produce no more than 2,000 barrels or 62,000 gallons per year, a ministerial permit could be obtained. For operations up to 8,000 barrels and 124,000 gallons per year, a discretionary permit would be required. Construction of a new microbrewery, cidery, and micro-distillery facility could require grading and ground disturbance, which would disturb existing soil conditions. The resulting soil disturbance could increase the potential for erosion and the amount of sediment entering stormwater conveyance systems during a storm event. However, most construction activities would require a building or grading permit and at a minimum would trigger the need for a Minor SWMP. Similar to the agricultural tourism activities discussed above, microbreweries, cideries, and micro-distilleries would also be expected to attract visitors with increased potential for pollutant generation.

Mobile Butchering

Mobile butchering would be allowed under the proposed project by right where Packing and Processing: Limited General is currently allowed. Commercial butchering would also include a Food and Beverage Retail Sales use type. Mobile butchering would operate out of a self-contained facility and would not involve construction or ground disturbance. It is anticipated that mobile butchering could produce a substantial amount of waste water from washing processed meat, work areas, and equipment. State law prevents that water from being discharged to the ground, stormwater conveyance, or a water body. Therefore, operations would be required to discharge to a sewer system or collected for disposal at a proper facility.

Wineries

The proposed project would allow for an accessory structure, up to 5,000 square feet to be permitted for wineries. The expansion of winery uses in S92 zones could expand onsite water and wastewater facilities in existing buildings and structures to accommodate additional visitors. Furthermore, wineries could require new construction, or promote ground-disturbing activities such as grading, tilling, and planting, which could potentially result in an increase in pollutants. Similar to microbreweries, most construction would require permits from the County and some oversight for water quality controls.

Summary

In general, the proposed ordinance amendment is likely to facilitate additional agricultural production in the County. These additional agricultural operations have the potential to contribute pollutants such as fertilizers, herbicides, or insecticides into surface water bodies. Pollutants entering surface water bodies from agricultural operations could potentially violate water quality standards. Also, some future accessory operations could occur along unpaved rural roads. Depending on a range of factors including, but not limited to, road conditions, absorption rates, slope, and the frequency and duration of storm events, increased traffic on unimproved roads from the addition of accessory operations could degrade the quality of the road surface. Increased erosion and sedimentation could result in adverse impacts on surface waters and drainages near unimproved roads. Contaminants related to automobiles on roadways can also be transported in sediments. While SWMPs and/or SWPPPs would often be prepared for sites where new development is proposed, these plans seldom cover the use of offsite roads.

In summary, the proposed project promotes a number of accessory agricultural uses that may result in the generation of additional pollutants through construction activities, operations, and increased visitation. These pollutant sources are common to rural residential and agricultural properties and do not pose a substantially greater risk to the environment than the uses that are already found in the unincorporated areas of the County. A variety of regulations are in place to provide oversight of water quality controls and to protect against pollutant discharges. However, even with these regulations, discharges of pollutants would be expected to occur because some activities would not have oversight and BMPs are not always 100% effective at eliminating pollutant discharges. **The increase of accessory agricultural uses in the unincorporated areas of San Diego County would result in additional pollutant discharges and such discharges may violate surface water quality standards or otherwise substantially degrade water quality; therefore, it is concluded that impacts from the project on surface water quality would be potentially significant (Impact HY-1).**

2.5.3.2 Soil Erosion

Guidelines for the Determination of Significance

The following significance guideline from Appendix G of the State CEQA Guidelines applies to both the direct and cumulative impact analyses. A significant impact would occur if the proposed project would:

- Substantially alter the existing drainage pattern of the site or 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.

Analysis

The natural process of erosion removes soil, sediment, and rock from exposed areas and transports the resulting sediment. The rate of erosion is dependent on the type of material that is eroded, the type and amount of erosive forces, and the shape of the landform involved. Land-disturbing activities associated with the construction of new or expanded agriculture operations may result in the alteration of drainage patterns that could cause substantial erosion or siltation on or off site. The potential for grading and construction to occur as part of accessory agricultural uses is discussed above under Section 2.5.3.1, *Water Quality*.

However, ground-disturbing activities are subject to County permitting requirements when exceeding certain limitations. Discretionary grading permits may be needed for earthwork involving 200 cubic yards of soil import or export, or involving more than 2,500 cubic yards of grading. These permits trigger additional environmental review pursuant to CEQA. As mentioned in the surface water quality discussion above, issuance of a Grading Permit is a discretionary action that requires environmental review. These permits also require adherence to the WPO and Part F.3.1 of the Stormwater Standards Manual, which includes provisions for erosion control BMPs. These BMPs would ensure that erosion/sedimentation impacts are avoided. Thus, the proposed ordinance amendment would not significantly increase the amount of erosion through expanded agriculture operations. Although some structures may not trigger the need for Grading Permits, Building Permits would often be required that include Minor SWMP requirements. The Grading and Building Permit process would ensure that applicants demonstrate compliance with regulations established in the County Grading Ordinance that prohibit, in part, any ground-disturbing activities that reduce the capacity of a watercourse or impair the flow of water in a watercourse, and require erosion and sediment controls.

The proposed zoning changes in the proposed project could result in construction of new structures, parking, landscaping, access improvements, and other features within unincorporated San Diego County. New facilities could result in permanent alterations to existing drainage patterns by converting areas from pervious surfaces to impervious surfaces. These additional impervious surfaces could increase runoff and potentially result in new erosion problems or the worsening of existing erosion problems. Increased vehicle trips and maintenance activities on dirt roads leading to the agricultural operations also have the potential to increase erosion and siltation, especially during the wet season when muddy conditions require extra maintenance to keep the roads in satisfactory condition. Future agricultural operations would be required by the WPO to implement site design measures, source control, and/or treatment control BMPs to reduce potential pollutants, including sediment from erosion or siltation, to the maximum extent practicable from entering stormwater runoff. These BMPs for erosion control are a part of the requirement for a building

permit and are regulated and enforced as part of the building inspection process. In addition, the WPO and Part F.4.7.1 of the Storm Water Standards Manual require that all grading, even grading that is exempt from a Grading Permit requirement, implements BMPs to avoid impacts. Compliance with the WPO and Part F.4 and Part F.4.7.1 of the Storm Water Standards Manual will ensure that development of facilities would not result in substantial erosion or siltation on site.

Future projects that involve structures larger than the allowable by right size under the Zoning Ordinance would require a permit and be subject to the WPO, including preparation of a SWPPP and site-specific BMPs and LID techniques to reduce impacts on water quality. As with the expansion of agricultural operations, should the construction of new structures and tasting rooms require clearing or grading that exceeds 200 cubic yards, a discretionary Grading and/or Administrative Permit for clearing would be required. These activities would be subject to the NPDES construction stormwater general permit program, which requires a SWPPP to be prepared and BMPs to be identified for construction sites greater than 1 acre. The implementation of appropriate BMPs would reduce erosion by minimizing site disturbance and controlling internal construction erosion.

Much like the water quality discussion (Section 2.5.3.1 above), there are several layers of protection available that would help prevent erosion/siltation impacts, such as the BMPs required in conjunction with a building permit, Grading Permit, or Administrative Permit for ground-disturbing activities. However, as with water quality, even with all these regulations it is impossible to provide oversight of all activities and to ensure adequacy of all BMPs. Therefore, **impacts related to substantial erosion or siltation from agricultural operations would be potentially significant (Impact HY-2).**

2.5.3.3 Drainage

Guidelines for the Determination of Significance

The following significance guideline from Appendix G of the State CEQA Guidelines applies to both the direct and cumulative impact analyses. Significant impacts would occur if the proposed project would:

- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.

Analysis

Construction of impervious surfaces, such as horse stables, buildings, parking lots, and driveways, reduces the amount of rainfall that can infiltrate the ground surface and move to the subsurface. As a result, the volume of surface water runoff increases within a watershed; subsequently, artificial conveyances such as gutters, storm pipes, and natural channel improvements to accommodate additional volume accelerate the rate of flow of water in the watershed. This faster-moving, higher volume of surface water runoff within a watershed results in a higher probability and increased severity of flooding within a watershed if drainage facilities are not adequately maintained or constructed to carry peak flow capacity. Accessory agricultural uses may result in the development of impervious surfaces, such as storage areas, buildings, parking lots, and driveways that could affect existing or planned stormwater drainage systems.

If a future accessory use requires the building or removal of a structure, a building permit would be required, and development of the facility would be subject to the preparation of a Minor SWMP and

site-specific BMPs and LID techniques to maintain existing drainage patterns and runoff levels to the greatest extent possible. Conformance to the WPO and other local requirements would ensure that future facilities do not substantially alter the existing drainage patterns or contribute runoff water that would potentially exceed the capacity of existing or planned stormwater drainage systems.

Projects triggering Grading Permits or other discretionary approvals would be evaluated under CEQA and would be required to implement measures to minimize alterations to existing drainage patterns, as necessary. CEQA requires proposed projects to provide detailed information on the potentially significant environmental effects they are likely to have, list ways in which the significant environmental effects would be minimized, possibly identify alternatives that would reduce or avoid the significant impacts identified for the project, and propose mitigation for significant impacts.

The discretionary review process requires the submittal of pre- and post-construction drainage information to ensure that projects do not substantially alter drainage patterns and increase runoff. The County may also require the preparation of a Drainage Report in accordance with the County Hydrology Manual, which provides uniform procedures for stormwater analysis (County of San Diego 2003a). Priority development projects are also subject to the County Hydromodification Management Plan. Although focused on erosion protection, hydromodification control measures also assist in the management of runoff volumes and rates. These local regulations ensure that projects are designed to meet the capacity of existing stormwater systems, or are required to retrofit stormwater drainage systems so that they would not cause flooding.

Because of the level of oversight provided by existing regulations when there are additional impervious areas, **the proposed project would not result in significant impacts related to exceeding the capacity of stormwater systems.**

2.5.4 Cumulative Impacts Analysis

The geographic scope of cumulative impact analysis varies depending on the type of resource with potential to be affected. Hydrology and water quality on a cumulative level include all agricultural operations that may contribute runoff or pollutants, or may otherwise degrade water resources in the County. Development of related agricultural operations that involve soil disturbance and the addition of impervious surfaces that could lead to changes in soil erosion and drainage patterns are also included. However, the potential for combining impacts is limited to watersheds. As such, the geographic scope for the cumulative analysis includes those watersheds that cover the unincorporated areas, including the portions of the watersheds that include surrounding cities and counties.

2.5.4.1 Surface Water Quality

Overall water quality in the region has degraded over time as natural habitat has been converted and developed for other uses, and these uses have resulted in runoff of various pollutants into regional surface water bodies and their tributaries. A variety of programs have been implemented with the goal of halting degradation of water quality and reversing this trend. Several state and federal agencies are involved in these programs, many of which come from the federal CWA. Nonetheless, a cumulative adverse water quality condition exists.

Construction of the proposed project as well as construction of the related projects would result in surface disturbance through ground scraping, grading, trenching, and compaction associated with typical development activities. In some cases, existing vegetation would be removed, thereby

increasing the potential for erosion. Operational activities and proposed land uses (e.g., crops, parking areas) would generate contaminant discharges, such as fertilizers, pesticides, petroleum products, and volatile organic compounds, which would be carried in stormwater runoff. These constituents could enter the storm drainage system and adversely affect water quality. Although a variety of regulations are in place to reduce pollutant discharges, some discharges are expected to occur. **When the potentially significant project-level impact on surface water quality (Impact HY-1) is considered at the cumulative level, the project's contribution to a cumulative impact is considered to also be potentially significant (Impact HY-3).**

2.5.4.2 Soil Erosion

The WPO and the Storm Water Standards Manual require that all grading must implement BMPs to avoid impacts from erosion or siltation on site. This ensures that all future development is required to comply with measures that reduce cumulative impacts from erosion or siltation to a less-than-significant level.

Future development, when combined with future agriculture projects, could increase traffic on unimproved roads, and the sedimentation and erosion that could result might contribute to surface water quality impacts that might exceed the Basin Plan's water quality objective for sediment in some locations; therefore, these indirect and offsite impacts could cause surface water quality impacts that would be cumulatively considerable. Future agriculture projects would be expected to follow regulations such as NPDES or others applicable. Proposed accessory agricultural operations that do not require discretionary review may still require a building permit if any structures are proposed to be constructed or demolished, and therefore would be subject to preparation of a Minor SWMP, which includes requirements for construction BMPs, LID, and post-construction BMPs. However, even with several layers of protection available to help prevent erosion/siltation impacts, such as the BMPs required in conjunction with various permits for ground-disturbing activities, the project-level impact related to substantial erosion or siltation from agricultural operations is potentially significant. **When the potentially significant project-level impact on soil erosion (Impact HY-2) is considered at the cumulative level, the project's contribution to a cumulative impact is considered to be potentially significant (Impact HY-4).**

2.5.4.3 Drainage

Development of the proposed project in combination with development of the related projects would result in the addition of impervious surfaces, which could increase stormwater runoff. However, in accordance with federal and state stormwater regulations, new construction and significant redevelopment must maintain pre-project hydrology and incorporate proper pollutant source controls, minimize pollutant exposure outdoors, and treat stormwater runoff through proper post-construction BMPs when source control or exposure protection are insufficient for reducing pollutant loads. Therefore, before any construction-related ground disturbance, final drainage plans would be required to demonstrate that all runoff would be appropriately conveyed and not leave the project sites at rates exceeding pre-project runoff conditions. Consequently, the proposed project would not have a considerable contribution to cumulative drainage impacts such that a new cumulative impact would occur. **This would be a less-than-significant cumulative impact.**

2.5.5 Significance of Impacts Prior to Mitigation

The proposed project would result in potentially significant impacts associated with hydrology and water resources involving water quality, including surface water quality (**Impacts HY-1, direct/indirect, and HY-3, cumulative**) and soil erosion (**Impacts HY-2, direct/indirect, and HY-4, cumulative**). The proposed project would not result in potentially significant impacts on drainage related to exceedance of stormwater systems capacity.

2.5.6 Mitigation Measures

The proposed project would allow for development of accessory uses to agricultural lands. Future development fostered by the proposed project, such as agricultural and horticulture retail (large), agricultural microbreweries, cideries, and micro-distilleries (large), and animal raising would be required to obtain a discretionary permit, which would trigger discretionary environmental review and feasible mitigation would be proposed. Typical mitigation measures for these projects could include requirements for project applicants to: demonstrate waste discharge requirements have been met in accordance with RWQCB NPDES permit conditions; implement project design measures such as construction stormwater BMPs for erosion and sediment control, road improvement and paving, runoff catchment, and filtration; and limit use of toxic compounds (fertilizers and pesticides) to minimize impacts. As a result, specific impacts on water quality would be analyzed and mitigated for these types of discretionary projects.

At the same time, there may also be future by-right projects for which related discretionary permits are required but for which mitigation would not be feasible, or for which no related discretionary permit is required (e.g., where grading is allowed under the by-right use, but which would impact native or fallow land). For such by-right projects, CEQA review would not be required, and appropriate mitigation would not be possible.

Additionally, the following feasible mitigation measures would apply to future projects under the Agriculture Promotion Project that would be required to undergo environmental review. As it cannot be concluded at this stage that impacts on water quality from all future agricultural projects allowed by the ordinance amendment would be avoided or mitigated, **impacts would remain significant and unmitigated.**

2.5.6.1 Water Quality

The proposed project would amend current regulations related to accessory agricultural projects that may directly or indirectly result in a violation of water quality standards or waste discharge requirements, or otherwise substantially degrade water quality (**Impacts HY-1, direct/indirect and HY-3, cumulative**). Mitigation measures described below have been identified that would reduce water quality impacts during construction and operation, but not below a significant level. **Therefore, these impacts would remain significant and unavoidable.** Chapter 4, *Project Alternatives*, provides a discussion of alternatives to the proposed project that would result in some reduced impacts associated with water quality as compared to the proposed project.

Mitigation Measures

M-HY-1: During the environmental review process for future discretionary permits for accessory agricultural uses, the County Guidelines for Determining Significance for Hydrology

and Water Quality Resources shall be applied. When impacts on hydrology are determined to be significant, feasible and appropriate project-specific mitigation measures shall be incorporated.

M-HY-2: Comply with the NPDES, RWQCB's Conditional Waivers, County of San Diego WPO, and the County Grading Ordinance, require preparation of storm water management plans as applicable, and implement BMPs.

2.5.6.2 Soil Erosion

The proposed project would amend current regulations related to accessory agricultural projects that may directly or indirectly result in soil erosion impacts (**Impacts HY-2, direct/indirect, and HY-4, cumulative**). Mitigation measures M-HY-1 and M-HY-2 would reduce soil erosion impacts during construction and operation, but not below a significant level. **Therefore, these impacts would remain significant and unavoidable.** Chapter 4, *Project Alternatives*, provides a discussion of alternatives to the proposed project that would result in some reduced impacts associated with soil erosion as compared to the proposed project.

2.5.7 Conclusion

Because future development of an unknown number of new or expanded agricultural operations at unknown locations could cause impacts to surface water quality and erosion/siltation, adoption of the proposed ordinance amendment could result in potentially significant direct, indirect, and cumulative impacts (**Impacts HY-1, HY-2, HY-3, and HY-4**). By-right uses would not be subject to discretionary approval, and, thus, no additional environmental review would be conducted. Therefore, these impacts are significant and unmitigated because there would be no enforcement mechanism to guarantee avoidance or compliance with environmental regulations. Compliance with all applicable regulations including the WPO and Grading Ordinance would ensure that drainage impacts are addressed and are less than significant.

Table 2.5-1. Criteria for Rating Soil Erodibility

Soil Properties Affecting Erodibility	Erodibility		
	Slight	Moderate^a	Severe^{b,c}
Surface Layer Texture (sediment composition) ^c	Clay	Clay loam, sandy loams, loam	Sands, or loamy sands
Grade of granular, crumb, or blocky structure in the surface layer (particle size and strength)	Strong	Moderate	Weak and massive and single grain
Depth to material that restricts permeability	More than 40 inches	20–40 inches	Less than 20 inches
Slope	Less than 15%	15–30%	More than 30%

Source: Table 12 from U.S. Department of Agriculture's *Soil Survey for the San Diego Area Part II*; County of San Diego 2007e.

^a Rating is slight for clay loam, sandy loams, loam, sands, and loamy sands if coarse fragments cover more than 75% of surface.

^b Rating is moderate for sands and loamy sands if coarse fragments cover 25 to 75% of surface.

^c Rating is according to surface layer texture if coarse fragments cover only 1 to 25% of surface.