3.10 Hydrology and Water Quality

This section addresses the potential impacts to hydrology and water quality associated with implementation of the proposed Project. This section includes: a description of the existing hydrologic and water quality conditions in and around the proposed Project area; a summary of applicable regulations related to hydrology and water quality; and an evaluation of the potential impacts of the proposed Project related to hydrology and water quality in and around the Project area. Impacts to hydrology and water quality are less than significant, and no mitigation is required.

The information included in this section is partly based on the results of two studies prepared for the SLRC Master Plan: The Water Resources Report and the Water Quality Model Technical Report (Water Quality Model) (CWE 2019, 2020). The Water Resources Report describes existing and historical water resources at the SLRC, water quality goals, opportunities and constraints related to water issues, and potential funding sources for the proposed Project. The Water Quality Model was prepared to estimate the future condition of water quality in the SLRC following implementation of the proposed Project.

3.10.1 Environmental Setting

Regional and Local Hydrology

The proposed Project would be located in the Silver Lake neighborhood of the City of Los Angeles. The existing Silver Lake Reservoir Complex (SLRC) is situated in an urbanized valley within the eastern foothills of the Santa Monica Mountain Range. The SLRC includes the Silver Lake and Ivanhoe Reservoirs and three dams operated by LADWP, as well as recreational facilities and LADWP operations facilities in adjacent SLRC areas (see Figure 2-2). The SLRC is located west and adjacent to the San Fernando Valley Groundwater Basin (Basin 4-12), whose surface waters include the Los Angeles River and its major tributaries. The Silver Lake and Ivanhoe Reservoirs are no longer in service for the City’s potable water needs. Starting in 2018, LADWP has maintained water levels in the Silver Lake and Ivanhoe Reservoirs by pumping treated Basin 4-12 groundwater from Pollock Well #3, located in the LADWP Ripple Street Yard northeast of the SLRC (CWE 2019). The SLRC is bound by the Los Angeles River and Ballona Creek Watersheds on the east and west sides of the property (ULARA Watermaster 2019; Ballona Creek Watershed Task Force 2004).

Surface Water Hydrology

The topography in surrounding neighborhood areas is characterized by steep slopes which ascend from the reservoir to the north, west, and east, and descend to the south. Both reservoirs in the SLRC have paved side slopes of 30 vertical feet which extend to an approximate elevation of 428 above mean sea level (amsl). The bottom of Silver Lake Reservoir is composed of compacted clay material and the bottom of Ivanhoe Reservoir is lined with asphaltic concrete. Silver Lake Reservoir is graded to drain to a low point in the center at elevation 414 amsl, while Ivanhoe Reservoir’s bottom slopes to the southwest to an elevation of 422 amsl (CWE 2020). A concrete spillway is located at the dam that separates Ivanhoe Reservoir from Silver Lake Reservoir,
which allows water to spill into Silver Lake Reservoir when the water elevation at Ivanhoe Reservoir is above 451 feet.

The SLRC is also equipped with an overflow spillway structure on the west side of Silver Lake Reservoir (see Figure 2-2). The overflow spillway connects to a drain pipe that tunnels underneath the hillside to the west of Silver Lake Reservoir and discharges to the Los Angeles County Flood Control District (LACFCD) storm drain network, which is tributary to Ballona Creek (CWE 2020). Water discharges through the overflow spillway if surface water levels in Silver Lake Reservoir rise above 454 feet in elevation. However, the SLRC does not receive tributary surface water flows and only receives limited amounts of water from precipitation. Surface water levels are further reduced by seepage and evaporation that result in an 82 acre-feet per year (AFY) and 9 AFY of water loss within Silver Lake and Ivanhoe Reservoirs, respectively.

In the past, LADWP has operated the Silver Lake and Ivanhoe Reservoirs to maintain water levels between 440 and 451 feet. The water levels historically maintained by LADWP were several feet below the overflow elevation of 451 feet to avoid discharge under normal operating conditions (CWE 2020).

As discussed in Section 2.7.3, Drought Emergency Contingencies, operational constraints may require modifications to the water levels corresponding to overall system needs, including the need to prioritize use of local groundwater to augment potable water supplies during periods of drought. LADWP utilizes conjunctive use strategies to balance supplies with dry period demands, while also preventing overdraft of its basins. During previous successive dry-year periods, LADWP pumped groundwater at greater-than-average rates for the first few years of the dry period, then lowered its pumping rates and increased surface water use in subsequent years to facilitate groundwater replenishment (LADWP 2021). The ability to curtail groundwater pumping during emergency droughts that would normally be supplied to the reservoirs would reduce impacts to the groundwater basin, while ensuring that potable water demands relying on groundwater are met. In addition, the reservoirs are currently used as a source of water for firefighting operations by the City and the County of Los Angeles Fire Departments and would continue to serve this purpose after construction of the proposed Project.

Absent spillway discharge, the SLRC reservoirs are isolated bodies of water that are tributary to neither the Los Angeles River nor Ballona Creek. As such, the SLRC is currently managed in a manner that is discrete from the Los Angeles River and Ballona Creek Watershed Enhanced Watershed Management Programs (EWMP), whose watersheds bound either side of the SLRC (CWR 2019). Nonetheless, it is assumed that limited amounts of water drain from the SLRC to the Ballona Creek watershed via the existing storm drain network, either through seepage in the reservoirs or stormwater runoff near the boundaries of the SLRC (e.g. from rainfall on recreation spaces outside of the reservoir basin).

As discussed above, the Silver Lake and Ivanhoe Reservoirs are artificially constructed reservoirs with no naturally occurring surface water flow. Table 3.10-1 lists inflow and outflow sources affecting surface water levels in the reservoirs, as provided in the Water Quality Model prepared for the Project. The reservoirs are not considered Waters of the United States (USEPA 2022).
### Water Quality

Existing water quality within the SLRC is generally in good condition due in part to the limited size of the tributary watershed. The predominant source of water used to fill the reservoirs since 2017 has been a mix of potable water and non-potable treated groundwater from Pollock Well #3, with very little precipitation. The only stormwater that can currently enter the SLRC comes from precipitation that falls on the SLRC, which is generally of good quality. Stormwater tends to have more impaired water quality due to picking up sediments and pollutants from the ground surface as it moves over land (CWE 2019).

Pollock Wellfield extracts groundwater from Basin 4-12, which has been impacted by contamination plumes from hexavalent chromium and from volatile organic compounds (VOCs) such as trichloroethylene (TCE) and perchloroethylene (PCE) (CWE 2019). Due to existing groundwater contamination at the Pollock Wellfield, the Los Angeles Regional Water Quality Control Board (RWQCB) granted a Waste Discharge Permit (WDR) requiring LADWP to treat groundwater extracted from Pollock Well #3 with a granular activated carbon (GAC) system before discharging to the SLRC (RWQCB 2017).

### Groundwater

As described previously, the reservoirs at the SLRC are supplied with treated Basin 4-12 groundwater from Pollock Well #3. Under current operating procedures, groundwater water is pumped through a portable GAC treatment facility at a peak rate of approximately three cubic feet per second (cfs). The Water Quality Model for the proposed Project estimates that the annual average volume of Basin 4-12 groundwater pumped into the SLRC is 241 AFY (CWE 2020).

Basin 4-12 consists of 112,000 acres and is the largest of four basins in the Upper Los Angeles River Area (ULARA) (ULARA Watermaster 2019). Urban development in ULARA over time has resulted in a significant portion of the rainfall being collected and routed into storm drains.
and/or lined channels that discharge directly into the Los Angeles River. However, groundwater levels in this basin have been fairly stable over about the past 20 years since adjudication of the basin (DWR 2004; ULARA Watermaster 2019). Generally, groundwater flows from the edges of the San Fernando Valley Basin toward the middle of the basin, then beneath the Los Angeles River Narrows (the river segment which is located a 0.5-mile northeast of the SLRC) into the Coastal Plain of Los Angeles Basin (Basin 4-11) (DWR 2004). The Central and West Coast Subbasins of Basin 4-11 span the areas south and west of the SLRC to the Pacific Ocean. In the event of a probable maximum precipitation storm, described above, the overflow spillway at the SLRC would discharge water into the the Central and West Coast Subbasins via the Ballona Creek watershed.

Basins 4-11 and Basin 4-12 are both designated by the California Department of Water Resources (DWR) as very low priority basins under the Sustainable Groundwater Management Act (SGMA), and do not have specific groundwater management plans (DWR 2021). Further discussion on the SGMA is included below in Section 3.10.2, Regulatory Framework, Sustainable Groundwater Management Act of 2014.

Flood Hazards

Flood hazards in an urban environment are influenced by development patterns, as storm events contribute to rapid runoff over impervious surfaces and can flood local drainages. In addition, flood hazards can occur due to emergency releases from dams that lead to local or regional inundation. The existing Silver Lake and Ivanhoe Reservoirs are in Zone A (“1 percent annual chance flood hazard contained in a channel”), which is a special flood hazard area without base flood elevation. However, given that the existing reservoirs are within a closed basin (i.e., the reservoir basin is closed off by dams), the Silver Lake and Ivanhoe Reservoirs would not be considered to be at risk from flooding due to a 100-year storm event. Lands surrounding the existing reservoirs are in Zone X, defined by FEMA as an area of minimal flood hazard (FEMA 2008). Issues with flood hazards associated with the proposed Project are related to dam safety and inundation areas, as described below.

Dam Safety

The SLRC comprises two reservoir basins totaling approximately 94 acres: Ivanhoe to the north (9 acres) and Silver Lake to the south (85 acres). Both reservoirs combined hold approximately 2,200 acre-feet of water at the elevation of the spillway crest between the reservoirs, at approximately 451 feet. The bottom of Silver Lake Reservoir is composed of compacted clay material and the bottom of Ivanhoe Reservoir is lined with asphaltic concrete. The existing reservoirs are under the jurisdiction of the Division of Safety of Dams (DSOD), which requires preparation of inundation maps for areas downstream of dams which could be subject to flooding in the event of a dam failure, as discussed further in Section 3.10.2, Regulatory Framework.

DSOD hazard potential classifications are based on Federal guidelines published by the Federal Emergency Management Agency (FEMA). FEMA recommends a three-step rating system that

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1 Zone A means that FEMA has determined that the area may be subject to a 100-year flood event but has not prepared a detailed hydraulic analysis to quantify the base flood elevation or potential flood depth.
defines low, significant, and high hazard potential classifications, determined from factors including potential loss of life, economic loss, and environmental damage resulting from a hypothetical dam failure scenario. DSOD further subdivides FEMA’s High classification to an Extremely High classification in order to identify dams upstream of highly populated areas or extensive development dams with short evacuation waiting times. When the population within the inundation area consists of 1,000 persons or more, the dam is generally assigned an “Extremely High” risk classification.

Inundation maps for the SLRC indicate that under existing conditions, the potential area of inundation for Silver Lake Dam would extend southwest for approximately 8 miles through nearby residential communities before reaching Ballona Creek near the Interstate 10 freeway (I-10) (LADWP 2020a). The mapped inundation area for Ivanhoe Dam is much more localized, and extends north from the SLRC through nearby residential communities along Silver Lake Drive and Rokeby Street before ending at Armstrong Avenue (LADWP 2020b). The areas downstream of Silver Lake Dam and upstream of Ivanhoe Dam are highly populated, thus the downstream hazard for the existing reservoirs are classified by DSOD as extremely high (DSOD 2021).

**Tsunami and Seiche Hazards**

Tsunamis are ocean waves generated by vertical movement of the sea floor, normally associated with earthquakes or volcanic eruptions. The proposed Project site is not located in a coastal area subject to tsunamis (DOC 2022a).

Seiches are oscillations of enclosed or semi-enclosed bodies of water that result from seismic events, wind stress, volcanic eruptions, underwater landslides, and local basin reflections of tsunamis. As the proposed Project site is located approximately one-mile south of the Hollywood-Raymond Hill Fault, 8 miles northeast of the Newport-Inglewood Fault, and 32 miles southwest of the San Andreas Fault, seiches due to seismic and wind-driven wave activity have the potential to occur within the Silver Lake and Ivanhoe Reservoirs (DOC 2022b).

**3.10.2 Regulatory Framework**

**Federal**

**Clean Water Act**

Regulatory authorities exist on both the state and federal levels for the control of water quality in California. The USEPA is the federal agency responsible for water quality management pursuant to the Clean Water Act (CWA) of 1977. The purpose of the CWA is to protect and maintain the quality and integrity of the Nation’s waters by requiring states to develop and implement state water plans and policies. The relevant sections of the CWA are summarized below.

**CWA Section 303: Water Quality Standards and Implementation Plans**

Section 303 of the CWA requires states to designate beneficial uses for water bodies or segments of water bodies and to establish water quality standards to protect those uses for all waters of the United States. Under Section 303(d) of the CWA, states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are waters that do not meet water quality standards established by the state. The law requires that these jurisdictions establish a
priority ranking for listed waters and develop action plans to improve water quality. Inclusion of a water body on the Section 303(d) List of Impaired Water Bodies triggers development of a Total Maximum Daily Load (TMDL) for that water body and a plan to control the associated pollutant/stressor on the list. The TMDL is the maximum amount of a pollutant/stressor that a water body can assimilate and still meet the water quality standards. Typically, a TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources.

Although the SLRC is not on the 303(d) list, other nearby reservoirs such as Echo Park Lake are on the 303(d) list. The Water Quality Model prepared for the proposed Project assumes that water quality objectives similar to those in other nearby reservoirs would be established for the SLRC sometime in the future. The proposed Project would be subject to the water quality goals listed in Table 3.10-2, which are based on numerical water quality limits established for Echo Park Lake. It should also be noted that Ballona Creek is also identified on the 303(d) list, and therefore Ballona Creek TMDL requirements may also apply to the SLRC if the SLRC eventually falls under the jurisdiction of the watershed. However, as described above in Section 3.10.1, Environmental Settings, the potential for SLRC spillway discharge into Ballona Creek is very low; thus, the SLRC would likely be able to comply with the watershed’s TMDL requirements without physical modifications to the spillway (CWE 2019).

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Related Numerical Limits Not to Exceed</th>
</tr>
</thead>
</table>
| Algae, Ammonia, Eutrophic, Odors| • Total Nitrogen: 1 mg/L  
• Ammonia-N: 2.15 mg/L (30-day average)  
• Ammonia-N: 5.95 mg/L (one-hour average)  
• Total Phosphorus: 0.1 mg/L  
• Chlorophyll-a 20 µg/L  
• Dissolved Oxygen: ≥5 mg/L (single sample one foot from bottom) |
| Copper                          | 22 µg/L                                                                                               |
| Lead                            | 11 µg/L                                                                                               |
| pH                              | 6.5 to 8.5                                                                                            |
| Trash                           | Zero                                                                                                  |
| Total Coliform                  | • 10,000 MPN/100 mL (single sample)  
• 1,000 MPN/100 mL (single sample, Fecal/Total ≥ 0.1)  
• 1,000 MPN/100 mL (geometric monthly mean)             |
| E. coli                         | • 235 MPN/100 mL (single sample)  
• 126 MPN/100 mL (geometric monthly mean)                                                            |
| Enterococci                     | • 104 MPN/100 mL (single sample)  
• 35 MPN/100 mL (geometric monthly mean)                                                              |

SOURCE: RWQCB 2014; CWE 2020

In addition to meeting the numerical limits listed in Table 3.10-2, the proposed Project would also be required to meet various narrative goals based on beneficial uses of Silver Lake and Ivanhoe

CWA Section 402: National Pollutant Discharge Elimination System
The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402 of the CWA is one of the primary mechanisms for controlling water pollution through the regulation of sources that discharge pollutants into waters of the United States. USEPA has delegated authority of issuing NPDES permits in California to the SWRCB, which has nine RWQCBs. The Los Angeles RWQCB regulates water quality in the Program area. The NPDES permit program is discussed in detail further below under Regional regulations.

Federal Antidegradation Policy
The Federal Antidegradation Policy has been incorporated within the Clean Water Act and requires states to develop state-wide antidegradation policies and identify methods for implementing them (USEPA 2010). Pursuant to the Code of Federal Regulations, state antidegradation policies and implementation methods must, at a minimum, protect and maintain: (1) existing in-stream water uses; (2) existing water quality, where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource.

Executive Order 11988 and National Flood Insurance Program
Under Executive Order 11988, FEMA is responsible for management of floodplain areas, defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a 1 percent or greater chance of flooding in any given year (representing the 100-year flood hazard zone). Also, FEMA administers the NFIP, which requires that local governments covered by federal flood insurance enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year flood zone. To facilitate identifying areas with flood potential, FEMA has developed Flood Insurance Rate Maps that can be used for planning purposes, including floodplain management, flood insurance, and enforcement of mandatory flood insurance purchase requirements.

Specifically, the NFIP requires that participating communities adopt certain minimum floodplain management standards, including restrictions on new development in designated floodways, a requirement that new structures in the 100-year floodplain be elevated to or above the 100-year flood level (known as base flood elevation), and a requirement that subdivisions be designed to minimize exposure to flood hazards. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding. The City of Los Angeles is a participating jurisdiction in the NFIP. Therefore, all new development must comply with the minimum requirements of the NFIP.
State

**California Department of Water Resources, Division of Safety of Dams**

The DSOD, through Division 3 of the California Water Code, is entrusted with regulatory authority and oversight for dam safety. The DSOD provides oversight of the design, construction, and maintenance of over 1,200 jurisdictional sized dams in California. Jurisdictional dams are dams that are more than 6 feet high and impound 50 acre-feet or more of water, or 25 feet or higher and impound more than 15 acre-feet of water. The Silver Lake and Ivanhoe Reservoirs are considered jurisdictional dams (DSOD 2021). The DSOD ensures dam safety by:

- Reviewing and approving dam enlargements, repairs, alterations, and removals to ensure that the dam appurtenant structures are designed to meet minimum requirements.
- Performing independent analyses to understand the performance of the dam and appurtenant structures. These analyses can include structural, hydrologic, hydraulic, and geotechnical evaluations.
- Overseeing construction to ensure work is being done in accordance with the approved plans and specifications.
- Inspecting each dam on an annual basis to ensure it is safe, performing as intended, and is not developing issues. Roughly 1/3 of these inspections include in-depth instrumentation reviews of the dam surveillance network data.
- Periodically reviewing the stability of dams and their major appurtenances in light of improved design approaches and requirements, as well as new findings regarding earthquake hazards and hydrologic estimates in California.

The California Office of Emergency Services Dam Safety Program was enhanced though passage of SB 92 (2017). The bill required preparation of Emergency Action Plans (EAPs) (except for dams designated as low-hazard) and brings inundation mapping under the jurisdiction of DWR. This legislation set forth additional provisions for EAPs including compliance requirements, exercises of the plan and coordination with local public safety agencies. EAPs are written documents that identify potential emergency conditions at a dam and specify pre-planned actions to help minimize property damage and loss of life should these conditions occur. EAPs contain procedures and information that instruct dam owners to issue early warning and notification messages to downstream emergency management authorities. EAPs also provide assistance and guidance to local jurisdictions on their emergency planning for a dam failure event to ensure effective dam incident emergency response procedures and planning.

SB 92 also requires EAPs be updated (at minimum) every 10 years or when there are significant changes at the dam, its critical appurtenant structures, or downstream hazard classification (DSOD 2019). Portions of the proposed Project design impacting dams and reservoirs have taken these restrictions into consideration based on a preliminary coordination with DWR and a courtesy review by DSOD. However, any future design impacting the dams and reservoirs would subject to more restrictions and oversight, and would be required to be reviewed and approved by LADWP and DSOD.
Porter-Cologne Water Quality Act (California Water Code)

The Porter-Cologne Water Quality Control Act established the legal and regulatory framework for water quality control in California (Division 7 of the California Water Code). The California Water Code (CWC) authorizes the State Water Resources Control Board (SWRCB) to implement the provisions of the CWA, including the authority to regulate waste disposal and require cleanup of discharges of hazardous materials and other pollutants. In California, the NPDES stormwater permitting program is administered by the SWRCB.

Under the CWC, the State of California is divided into nine Regional Water Quality Control Boards (RWQCBs), which govern the implementation and enforcement of the CWC and the CWA. The proposed Project site is located within Region 4, also known as the Los Angeles RWQCB. The RWQCBs develop and enforce water quality objectives and implement plans that will best protect California’s waters, acknowledging areas of different climate, topography, geology, and hydrology. Each RWQCB is required to formulate and adopt a Water Quality Control Plan (Basin Plan) for its region. The Basin Plan establishes beneficial use definitions for the various types of water bodies, and serves as the basis for establishing water quality objectives, discharge conditions and prohibitions, and must adhere to the policies set forth in the CWC and established by the SWRCB. In this regard, the RWQCB issued the Los Angeles Basin Plan on August 29, 2014 for the Coastal Watersheds of Los Angeles and Ventura Counties, with subsequent amendments. The RWQCB is also given authority to issue waste discharge requirements, enforce actions against stormwater discharge violators, and monitor water quality. The Basin Plan and the NPDES permits relevant to the proposed project are discussed further below.

Section 13050 of the CWC, part of the Porter-Cologne Act, defines pollution, contamination, and nuisance. Pollution is defined as alteration of water quality such that it unreasonably affects the water’s beneficial uses; contamination is defined as impairment of water quality to the degree that it creates a hazard to public health; and a nuisance is defined as anything that is injurious to health, offensive to the senses, an obstruction to property use, and which affects a considerable number of people.

California Antidegradation Policy

The SWRCB Anti-Degradation Policy, formally known as the Statement of Policy with Respect to Maintaining High Quality Water in California (SWRCB Resolution No. 68-16), restricts degradation of surface and ground waters. Specifically, this policy protects water bodies where existing quality is higher than necessary for the protection of beneficial uses and requires that existing high quality be maintained to the maximum extent possible.

Under the Anti-Degradation Policy, any actions that can adversely affect water quality in all surface and ground waters must: (1) be consistent with maximum benefit to the people of California; (2) not unreasonably affect present and anticipated beneficial use of the water; and (3) not result in water quality less than that prescribed in water quality plans and policies. Furthermore, any actions that can adversely affect surface waters are also subject to the federal Anti-Degradation Policy (40 CFR Section 131.12) developed under the CWA. Discharges from the proposed Project that could affect surface water quality would be required to comply with the
Anti-Degradation Policy, which is included as part of the NPDES permit requirements for point discharges.

**California Toxics Rule**

In 2000, the California Environmental Protection Agency (CalEPA) promulgated the California Toxics Rule, which establishes water quality criteria for certain toxic substances to be applied to waters in the State. CalEPA promulgated this rule based on CalEPA’s determination that the numeric criteria of specific concentrations of regulated substances are necessary for the State to protect human health and the environment. The California Toxics Rule establishes acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water such as inland surface waters and enclosed bays and estuaries that are designated by the Los Angeles RWQCB as having beneficial uses protective of aquatic life or human health.

**Water Quality Control Plan for the Los Angeles Region (Basin Plan)**

The Los Angeles RWQCB’s Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional terrestrial surface water bodies (e.g., creeks, rivers, streams, and lakes), groundwater, coastal drainages, estuaries, coastal lagoons, and enclosed bays within the Los Angeles RWQCB’s jurisdictional area. The preparation and adoption of Basin Plans are required by California Water Code Section 13240. According to Water Code Section 13050, Basin Plans establish the beneficial uses to be protected for the waters within a specified area, water quality objectives to protect those uses, and an implementation program for achieving the objectives. Because beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the state and federal requirements for water quality control. The water quality objectives are thus incorporated into NPDES permits. The Basin Plan is designed to preserve and enhance water quality and protect beneficial uses of all waters. Specifically, it:

1. Designates beneficial uses for surface and ground waters.
2. Sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state’s anti-degradation policy.
3. Describes implementation programs for achieving objectives to protect all waters in the region.

Table 3.10-3 lists the existing and potential future designated beneficial uses identified by the Los Angeles RWQCB for water bodies at the SLRC (the Silver Lake and Ivanhoe Reservoirs). As described above in Section 3.10.1, *Environmental Settings*, due to the isolated nature of its water bodies, the SLRC would not be tributary to Ballona Creek or Los Angeles River under normal operating conditions and therefore would not impact beneficial uses in these waters.
### Sustainable Groundwater Management Act of 2014

The Sustainable Groundwater Management Act of 2014 creates a framework for sustainable, local groundwater management in California. The SGMA allows local agencies to customize groundwater sustainability plans to their regional economic and environmental needs. The act requires local regions to create a groundwater sustainability agency (GSA) and to adopt groundwater management plans for groundwater basins or subbasins that are designated as medium or high priority; and sets a 20-year timeline for implementation. High-priority basins or subbasins in critical overdraft were required to adopt groundwater management plans by 2020; medium-priority basins or subbasins are required adopt groundwater management plans by 2022. Basins were initially prioritized under the SGMA by DWR in 2014 under the California Statewide Groundwater Elevation Monitoring Program.

Groundwater is supplied to the proposed Project site from Basin 4-12, which is designated as a very low priority basin. The San Fernando Valley Groundwater Basin has not been identified as a critically overdrafted basin by SGMA and, as such, does not have a specific groundwater management plan and is not subject to SGMA (DWR 2021).

### Regional

**NPDES Waste Discharge Program**

The federal CWA established the NPDES program to protect the water quality of receiving waters of the United States. Under CWA Section 402, discharging pollutants to receiving waters of the United States is prohibited unless the discharge is in compliance with an NPDES permit. In California, administration of the NPDES program has been delegated by USEPA to the SWRCB. The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and enforcement activities. Through the nine RWQCBs, point source dischargers are required to obtain NPDES permits (or, in California under authority of Porter-Cologne, Waste Discharge Requirements). Point sources include municipal and industrial wastewater facilities and stormwater discharges.

### Table 3.10-3

<table>
<thead>
<tr>
<th>Silver Lake Reservoir and Ivanhoe Reservoir</th>
<th>MUN</th>
<th>IND</th>
<th>PROC</th>
<th>WARM</th>
<th>WILD</th>
<th>REC-1</th>
<th>REC-2</th>
<th>SPWN</th>
<th>WET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Designated Beneficial Uses (Basin Plan)</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Potential Future Designated Beneficial Uses</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>P</td>
<td>E</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

Acronyms:
- **E**: Existing Beneficial Use
- **P**: Potential Beneficial Use
- **MUN**: Municipal and Domestic Supply
- **IND**: Industrial Service Supply
- **PROC**: Industrial Process Supply
- **WARM**: Warm Freshwater Habitat
- **REC-1**: Water Contact Recreation
- **REC-2**: Non-Contact Water Recreation
- **SPWN**: Spawning, Reproduction, and/or Early Development
- **WET**: Wetland Habitat

SOURCE: RWQCB 2019; CWE 2019
Effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters. When developing effluent limitations for an NPDES permit, a permit applicant must consider limits based on both the technology available to control the pollutants (i.e., technology-based effluent limits) and limits that are protective of the water quality standards of the receiving water (i.e., water quality-based effluent limits if technology-based limits are not sufficient to protect the water body). For inland surface waters and enclosed bays and estuaries, the water quality-based effluent limitations are based on criteria in the National Toxics Rule and the California Toxics Rule, and objectives and beneficial uses defined in the applicable Basin Plan. There are two types of NPDES permits: individual permits tailored to an individual facility and general permits that cover multiple facilities or activities within a specific category. The NPDES permits relevant to construction and operation of the proposed Project are described below.

Prior to issuance of any NPDES permits for construction activities or operational discharges, or issuance of licenses, a review and authorization process by the Los Angeles RWQCB is required to ensure such permits and licenses are protective of designated beneficial uses and water quality and that TMDL requirements are incorporated as permit conditions in a manner consistent with relevant plans, policies, and guidelines.

**NPDES Construction General Permit**

The State of California adopted a Construction General Permit on September 2, 2009 (Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ) (Construction General Permit). The Construction General Permit regulates construction site stormwater management. Dischargers whose projects disturb one or more acres of soil, or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the Construction General Permit for discharges of stormwater associated with construction activity. The proposed Project would be required to comply with the permit requirements to control stormwater discharges from the construction sites. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, as well as construction of buildings and linear underground projects, including installation of water pipelines.

In the proposed Project area, the Construction General Permit is implemented and enforced by the Los Angeles RWQCB, which administers the stormwater permitting program. To obtain coverage under this permit, project operators must electronically file Permit Registration Documents, which include a Notice of Intent, a Stormwater Pollution Prevention Plan (SWPPP), and other compliance-related documents. An appropriate permit fee must also be mailed to SWRCB. The SWPPP identifies best management practices (BMPs) that must be implemented to reduce construction effects on receiving water quality based on potential pollutants. The BMPs identified are directed at implementing both sediment and erosion control measures as well as other measures to control potential chemical contaminants. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-

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2 Water quality-based effluent limits specify the level of pollutant (or pollutant parameter), generally expressed as a concentration, that is allowable.
stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, and vehicle and equipment washing and fueling. The SWPPP also includes descriptions of the BMPs to reduce pollutants in stormwater discharges after all construction phases have been completed at the site (post-construction BMPs).

The Construction General Permit includes several new requirements (as compared to the previous Construction General Permit, 99-08-DWQ), including risk-level assessment\(^3\) for construction sites, an active stormwater effluent monitoring and reporting program during construction (for Risk Level II and III sites), rain event action plans for certain higher risk sites,\(^4\) and numeric effluent limitations for pH and turbidity as well as requirements for qualified professionals that prepare and implement the plan. The risk assessment and SWPPP must be prepared by a State-qualified SWPPP Developer and implementation of the SWPPP must be overseen by a State-qualified SWPPP Practitioner. Project construction activities would be consistent with the Construction General Permit; compliance is required by law and the provisions of the permit and BMPs for construction and post-construction phases have proven effective in protecting water quality at construction sites and downgradient receiving waters.

**Los Angeles County Municipal Separate Storm Sewer System Permit**

The Municipal Stormwater Permitting Program regulates stormwater discharges from municipal separate storm sewer (drain) systems (MS4s). Stormwater runoff and authorized non-storm flows (conditionally exempt discharges) are regulated under NPDES stormwater permits. Phase I NPDES permits require medium and large cities, or certain counties with populations of 100,000 or more, to obtain NPDES permit coverage for their stormwater discharges. Phase II permits require regulated small MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges. The MS4 permits require the discharger to develop and implement a Stormwater Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable, the performance standard specified in CWA Section 402(p), typically through the application of BMPs. The management programs specify what BMPs would be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations.

The current Los Angeles County MS4 Permit (Order No. R4-2021-0105) became effective on September 11, 2021. Stormwater runoff and authorized non-storm flows (conditionally exempt discharges) from unincorporated areas of Los Angeles County under County jurisdiction, and 84 cities within the Los Angeles County Flood Control District (the Permittees), including the City of Los Angeles where the SLRC is located, are regulated under the MS4 NPDES permit. The MS4 permit contains minimum standards that the Permittees must enforce when construction activities disturb an area greater than one acre, such as the Project would (see also requirements

\(^3\) The Construction General Permit defines three levels of risk (Risk Levels I, II, and III) that may be assessed for a construction site. Risk is calculated based on the “project sediment risk,” which determines the relative amount of sediment that can be discharged given the project and location details, and the “receiving water risk” (the risk sediment discharges pose to the receiving waters).

\(^4\) Those sites that have a high potential for mobilizing sediment in stormwater and drain to a sediment-sensitive water body.
for the statewide construction permit discussed above, which is a permit that the construction contractor must apply for and adhere to). Compliance with MS4 construction requirements includes implementation of worksite BMPs similar to those described for the Construction General Permit for erosion, sediment, non-stormwater management, and waste management.

During operation of the proposed Project, non-stormwater discharges from facility sites would be prohibited (with some conditional exceptions). Stormwater discharges must meet water-quality-based effluent limitations, or water quality standards for discharges leaving the site, and must not cause or contribute to the exceedance of receiving water limitations (water quality standards for receiving waters). The MS4 permit requires implementation of a Planning and Land Development Program for all “New Development” and “Redevelopment” projects subject to the Order to accomplish the following objectives:

- Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development toward existing communities via infill or redevelopment, and safeguarding of environmentally sensitive areas.

- Minimize the adverse impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of water bodies in accordance with requirements under the California Environmental Quality Act (CEQA).

- Minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing low-impact development (LID) design principles to mimic predevelopment water balance hydrology through infiltration, evapotranspiration, and rainfall harvest and use.

- Maintain existing riparian buffers and enhance riparian buffers when possible.

- Minimize pollutant loadings from impervious surfaces such as rooftops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs (including Source Control BMPs such as good housekeeping practices), LID Strategies, and Treatment Control BMPs.

- Properly select, design, and maintain LID and Hydromodification Control BMPs to address pollutants that are likely to be generated, reduce changes to predevelopment hydrology, ensure long-term function, and avoid the breeding of vectors.

- Prioritize the selection of BMPs to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources.

The MS4 permit order specifies the criteria or thresholds for determining projects that are classified as “New Development” and “Redevelopment Projects” subject to the requirements above. Redevelopment projects subject to approval for the design and implementation of post-construction controls to mitigate stormwater pollution, before completion of a project, include the following:

- Land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site.
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- Where redevelopment results in an alteration to more than 50 percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.

- Where redevelopment results in an alteration of less than 50 percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

Under the Los Angeles County MS4 Permit, permittees are required to implement a development planning program to address stormwater pollution. This program requires project applicants for certain types of projects to implement a Low Impact Development (LID) Plan. The purpose of the LID Plan is to reduce the discharge of pollutants in stormwater by outlining BMPs, which must be incorporated into the design of new development and redevelopment. These treatment control BMPs must be sufficiently designed and constructed to treat or retain the 0.75-inch, 24-hour rain event, or the 85th percentile, 24-hour storm event, whichever is greater, and achieve applicable water quality-based effluent limitations and/or receiving water limitations established pursuant to TMDLs. The discharger would be required to prepare a Monitoring and Reporting Program documenting outfall-based stormwater monitoring data (where stormwater exits the facility), wet and dry weather receiving water monitoring data, outfall-based non-stormwater monitoring data, and other relevant regional studies. The frequency of required monitoring and sampling activities is determined by a number of factors, including the types of receiving water body. In case of exceedance, the discharger would be required to submit an Integrated Monitoring and Compliance Report. This report would be used to determine additional measures to prevent or reduce pollutants contributing to the exceedance of receiving water limitations.

The proposed Project would be required to comply with the MS4 permit as administered by the local jurisdictions (i.e., the various cities), in addition to statewide water quality program administered by the RWQCB including the Porter-Cologne Water Quality Control Act. As such, discharges of the Project covered under the MS4 permit requirements would be required to adhere with the Waste Load Allocations assigned to MS4 discharges for applicable TMDLs.

**Los Angeles County Hydrology Manual**

Per the City's Special Order No. 007-1299, issued on December 3, 1999, the City has adopted the Los Angeles County Department of Public Works’ Hydrology Manual (LADPW Hydrology Manual) as its basis of design for storm drainage facilities. The Hydrology Manual requires that a storm drain conveyance system be designed for a 25-year storm event and that the combined capacity of a storm drain and street flow system accommodate flow from a 50-year storm event (also called Q50). Areas with sump conditions\(^5\) are required to have a storm drain conveyance system capable of conveying flow from a 50-year storm event (LADPW 2006). The County also limits the allowable discharge into existing storm drain facilities based on the MS4 permit, which is enforced on all new developments that discharge directly into the County’s storm drain system. Any proposed drainage improvements of County-owned storm drain facilities, such as catch

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\(^5\) A sump, or depression, is an area from which there is no surface flow outlet.
basins and storm drain line, require review and approval by the Los Angeles County Flood Control District.

**Local**

*City of Los Angeles Municipal Code*

**Section 62.105, Construction “Class B” Permit**

Proposed drainage improvements within the street right-of-way or any other property owned by, to be owned by, or under the control of the City, requires the approval of a B-permit (Los Angeles Municipal Code [LAMC] Section 62.105). Under the B-permit process, storm drain installation plans are subject to review and approval by City of Los Angeles Bureau of Engineering (BOE). Additionally, connections to the City’s storm drain system from a property line to a catch basin or a storm drain pipe require a storm drain permit from BOE.

**Sections 12.40 through 12.43, Landscape Ordinance (Ordinance No. 170,978)**

In 1996, Ordinance No. 170,978 amended LAMC Sections 12.40 through 12.43 to establish consistent landscape requirements for new projects within the City. Section 12.40 contains general requirements, including a point system for specific project features and techniques in order to determine compliance with the ordinance, and defines exemptions from the ordinance. Section 12.41 sets minimum standards for water delivery systems (irrigation) to landscapes. Section 12.42 provides various regulations, of which two are applicable to stormwater management. The Heat and Glare Reduction regulation states among its purposes the design of vehicular use areas that reduce stormwater runoff and increase groundwater recharge; and the Soil and Watershed Conservation regulation is intended, among other purposes, to increase the “residence time of precipitation” within a given watershed. Implementation guidelines developed for the ordinance provide specific features and techniques for incorporation into projects, and include water management guidelines addressing runoff, infiltration, and groundwater recharge.

**Section 64.70, Stormwater and Urban Runoff Pollution Control Ordinance (Ordinance No. 172,176)**

In 1998, LAMC Section 64.70, the Stormwater and Urban Runoff Pollution Control Ordinance (Stormwater Ordinance), was added by Ordinance No. 172,176, and prohibits the discharge of unauthorized pollutants in the City. The Watershed Protection Program (Stormwater Program) for the City is managed by the Department of Public Works, Bureau of Sanitation (LASAN), along with all City Flood Protection and Pollution Abatement (Water Quality) Programs, including but not limited to, regulatory compliance, implementation, operations, reporting and funding.

The Stormwater Ordinance applies to all dischargers and places of discharge that discharge stormwater or non-stormwater into any storm drain system or receiving waters. While this practice is prohibited under the County’s Municipal NPDES Permit, adoption of this ordinance allows enforcement by the Department of Public Works, as well as the levy of fines for violations. The Stormwater Ordinance prohibits the discharge of pollutants by persons operating or performing industrial or commercial activities into the storm drain system and receiving waters, except as authorized by a general or separate NPDES permit; defines illicit, exempt, and conditionally exempt discharges; prohibits the placement or discharge of trash, sewage, hazardous materials, and other waste in storm drains or receiving waters, or the accumulation,
storage, or disposal of these materials in such a way as to contaminate runoff discharged to these facilities; requires control of pollutants from parking lots; and prohibits illicit connections to municipal storm drain facilities.

**Section 64.72, Stormwater Pollution Control Measures for Development Planning and Construction Activities**

LAMC Section 64.72, Stormwater Pollution Control Measures for Development Planning and Construction Activities, was added by Ordinance 173,494 (LID Ordinance) in 2000 and sets forth requirements for construction activities and facility operations of development and redevelopment projects to comply with the requirements of the NPDES permit requirements. The provisions of this section contain requirements for construction activities and facility operations of development and redevelopment projects to comply with the Land Development requirements of the Los Angeles County MS4 permit through integrating LID practices and standards for stormwater pollution mitigation, and maximize open, green and pervious space on all developments and redevelopments consistent with the City's Landscape Ordinance and other related requirements in the Watershed Protection Division of LASAN's Development Best Management Practices (BMP) Handbook.

**Section 91.7013 and 91.7014, Erosion Control and Drainage Devices**

Earthwork activities, including grading, are governed by the Los Angeles Building Code, which is contained in LAMC, Chapter IX, Article 1. Specifically, LAMC Section 91.7013 includes regulations pertaining to erosion control and drainage devices, and Section 91.7014 includes general construction requirements, as well as requirements regarding flood and mudflow protection.

**City of Los Angeles Low Impact Development (LID) Ordinance (No. 181,899 and 183,833)**

In October 2011, the City adopted a Citywide LID Ordinance that amends the City’s existing Stormwater Ordinance (LAMC Sections 64.70.01 and 64.72, described above) to expand the applicability of the existing SUSMP requirements by imposing rainwater LID strategies on projects that require building permits. The LID Ordinance became effective on May 12, 2012 and was updated in September 2015 (Ordinance No. 183,833).

LID is a stormwater management strategy with goals to mitigate the impacts of increased runoff and stormwater pollution as close to its source as possible. LID promotes the use of natural infiltration systems, evapotranspiration, and the reuse of stormwater. The goal of these LID practices is to remove nutrients, bacteria, and metals from stormwater while also reducing the quantity and intensity of stormwater flows. Through the use of various infiltration strategies, LID is aimed at minimizing impervious surface area. Where infiltration is not feasible, the use of bioretention, rain gardens, green roofs, and rain barrels that will store, evaporate, detain, and/or treat runoff may be used.6

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The intent of LID standards is to:

- Require the use of LID practices in future developments and redevelopments to encourage the beneficial use of rainwater and urban runoff;
- Reduce stormwater/urban runoff while improving water quality;
- Promote rainwater harvesting;
- Reduce off-site runoff and provide increased groundwater recharge;
- Reduce erosion and hydrologic impacts downstream; and
- Enhance the recreational and aesthetic values in our communities.

The Citywide LID strategy addresses land development planning, as well as storm drain infrastructure. Toward this end, LID is implemented through BMPs that fall into four categories: site planning BMPs, landscape BMPs, building BMPs, and street and alley BMPs. While the LID Ordinance and BMPs contained therein are compliant with County Municipal NPDES Permit requirements for stormwater management, those requirements apply only to proposed new development and redevelopment of a certain size, primarily address stormwater pollution prevention as opposed to groundwater recharge, and vary over time as the permit is reissued every five years. The LID Ordinance provides a consistent set of BMPs that are intended to be inclusive of, and potentially exceed, SUSMP standards, apply to existing, as well as new, development, and emphasize natural drainage features and groundwater recharge in addition to pollution prevention in receiving waters. The LID Ordinance requires the capture and management of the first 0.75 of an inch of runoff flow during storm events defined in the City’s SUSMP BMPs, through one or more of the City’s preferred SUSMP improvements: on-site infiltration, capture and reuse, or biofiltration/biotreatment BMPs, to the maximum extent feasible as described below.

- **On-site infiltration** refers to the physical process of percolation, or downward seepage, of water through a soil’s pore space. As water infiltrates, the natural filtration, adsorption, and biological decomposition properties of soils, plant roots, and microorganisms work to remove pollutants prior to the water recharging the underlying groundwater. Infiltration BMPs include infiltration basins, infiltration trenches, infiltration galleries, bioretention without an underdrain, dry wells, and permeable pavement. Infiltration can provide multiple benefits, including pollutant removal, peak flow control, groundwater recharge, and flood control. However, conditions that can limit the use of infiltration include soil properties, proximity to building foundations and other infrastructure, geotechnical hazards (e.g., liquefaction, landslides), and potential adverse impacts on groundwater quality (e.g. industrial pollutant source areas, contaminated soils, groundwater plumes). To ensure that infiltration would be physically feasible and desirable, a categorical screening of site feasibility criteria must be completed prior to the use of infiltration BMPs.

- **Capture and reuse** refers to a specific type of BMP that operates by capturing stormwater runoff and holding it for efficient use at a later time. On a commercial or industrial scale, capture and reuse BMPs are typically cisterns, which can be implemented both above and below ground. Cisterns are sized to store a specified volume of water with no surface discharge until this volume is exceeded. The primary use of captured runoff is for subsurface drip irrigation. The temporary storage of roof runoff reduces the runoff volume from a property and may reduce the peak runoff velocity for small, frequently occurring storms. In
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addition, by reducing the amount of stormwater runoff flowing into a stormwater conveyance system, fewer pollutants are transported through the conveyance system into local streams and the ocean. The on-site reuse of the stored water for non-potable domestic purposes conserves City-supplied potable water and, where directed to unpaved surfaces, can recharge groundwater in local aquifers.

- **Biofiltration BMPs** are landscaped systems that capture and treat stormwater runoff through a variety of physical and biological treatment processes. Biofiltration systems normally consist of a ponding area, mulch layer, planting soils, plants, and, in some cases, an underdrain. Runoff that passes through a biofiltration system is treated by the natural adsorption and filtration characteristics of the plants, soils, and microbes with which the water comes into contact. Biofiltration BMPs include vegetated swales, filter strips, planter boxes, high flow biotreatment units, bioinfiltration systems, and bioretention systems with underdrains. Biofiltration can provide multiple benefits, including pollutant removal, peak flow control, and low amounts of volume reduction through infiltration and evapotranspiration.

Per the City’s 2016 LID Manual’s Figure 3.3 and Section 4.1, the City’s preferred LID improvement is on-site infiltration of stormwater since it allows for groundwater recharge and reduces the volume of stormwater entering municipal drains.\(^7\) If project site conditions are not suitable for infiltration, the City requires on-site retention via stormwater capture and reuse. Should capture and reuse be deemed technically infeasible, high efficiency biofiltration/bioretention systems should be utilized. Lastly, under the LID Ordinance (LAMC Section 64.72 C.6), as interpreted in the LID Manual, if no single approach listed in the LID Manual is feasible, then a combination of approaches may be used.\(^8\)

**City of Los Angeles Water Quality Compliance Master Plan for Urban Runoff**

The Water Quality Compliance Master Plan for Urban Runoff (Water Quality Compliance Master Plan) was developed by the City’s Department of Public Works, Bureau of Sanitation (LASAN), Watershed Protection Division, in collaboration with stakeholders, in response to a 2007 City Council motion (Motion 07-0663) for the development of a water quality master plan addressing pollution from urban runoff within the City. The Water Quality Compliance Master Plan was adopted in April 2009.

The Water Quality Compliance Master Plan addresses planning, budgeting, and funding for achieving clean stormwater and urban runoff for the next 20 years and presents an overview of the status of urban runoff management within the City. The Water Quality Compliance Master Plan identifies the City’s four watersheds; summarizes water quality conditions in the City’s receiving waters as well as known sources of pollutants; summarizes regulatory requirements for water quality; describes BMPs required by the City for stormwater quality management; and discusses related plans for water quality that are implemented within the Los Angeles region, particularly TMDL Implementation Plans and Watershed Management Plans in Los Angeles.

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3.10.3 Significance Thresholds and Criteria

The significance criteria used to evaluate the proposed Project impacts to hydrology and water quality are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact if it would:

- Would the proposed Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? (Refer to Impact 3.10-1)
- Would the proposed Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? (Refer to Impact 3.10-2)
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
  a. Result in substantial erosion or siltation on- or off-site;
  b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
  c. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
  d. Impede or redirect flood flows? (Refer to Impact 3.10-3)
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? (Refer to Impact 3.10-4)
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (Refer to Impact 3.10-5)

In addition, the 2006 L.A. CEQA Thresholds Guide holds that the determination of significance shall be made on a case-by-case basis after considering the following factors:

Surface Water Hydrology
- Whether the project would cause flooding during the projected 50-year developed storm event, which would have the potential to harm people or damage property or sensitive biological resources;

Surface Water Quality
- Whether the discharges associated with the project would create pollution, contamination or nuisance as defined in Section 13050 of the CWC or that cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body. (Refer to Impact 3.10-1)

Groundwater Quality
- Whether the proposed Project would:
  - Affect the rate or change the direction of movement of existing contaminants;
– Expand the area affected by contaminants;
– Result in an increased level of groundwater contamination (including that from direct percolation, injection, or saltwater intrusion; or
– Cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations (CCR), Title 22, Division 4, and Chapter 15 and in the Safe Drinking Water Act;

**Methodology**

The information included in the Water Resources Report and Water Quality Model provide the basis for much of the analysis in this section (CWE 2019, 2020). Discussions regarding future nutrient and contamination concentrations rely specifically on the results of the Water Quality Model, which modeled the future water quality in the SLRC following implementation of the proposed Project.

The proposed Project would be regulated by the various laws, regulations, and policies summarized in Section 3.10.2, Regulatory Setting. Compliance by the proposed Project with applicable federal, State, and local laws and regulations is assumed in this analysis and local and State agencies would be expected to continue to enforce applicable requirements to the extent that they do so now.

**2020 SLRC Master Plan Project Changes and Modeling Accuracy**

The Water Quality Model calculated the effects of the proposed Project on water quality in the Silver Lake and Ivanhoe reservoirs by modeling the different ways that water supplies that would enter and exit the SLRC. Since the Water Quality Model was prepared, LADWP has halted its plans to implement the Stormwater Capture Projects, which partially contributed to the future water quality conditions predicted in the model. The elimination of stormwater runoff as a variable could therefore affect the accuracy of the Water Quality Model with respect to future water supplies and water quality conditions. The discussion below provides reasoning for continued use of the Water Quality Model as the basis of the analysis despite this change.

**Water Quality Model and Water Quality**

In order to determine whether substantially different water quality impacts would occur for the proposed Project without the Stormwater Capture Projects, it must first be determined whether future water quality conditions were primarily attributable to the Stormwater Capture Projects. The following inputs/outputs were used to model future water quality conditions in the SLRC reservoirs under the proposed Project, or the “Master Plan Proposed Scenario” in the Water Quality Model: precipitation, bird droppings, atmospheric disposition, Pollock Wellfield groundwater, overflow from Ivanhoe to Silver Lake Reservoir, recirculation from Silver Lake to Ivanhoe Reservoir, Stormwater Capture Project runoff, exfiltration, evaporation, transpiration, overflow, and maintenance discharge.

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9 The Water Quality Model takes the form of a spreadsheet mass balance model that estimated the in-lake concentrations of nutrients and contaminants of concern over time. Transformations and removal of nutrients and contaminants within the SLRC were simulated based on rates from scientific and engineering literature.
The Water Quality Model also includes separate forecasts for future water quality conditions that would occur under baseline conditions together with future LADWP projects (no treatment wetlands), under baseline conditions only (no stormwater capture, recirculation or aeration projects and no treatment wetlands), and under baseline conditions without groundwater pumping. The models for these scenarios demonstrate how removing an increasing number of components affects future water quality conditions.

There were no model scenarios that included all components and excluded only the Stormwater Capture Projects. However, the results of the Water Quality Model generally identify the component that contributed most to differences in future water quality conditions across the various Project scenarios (CWE 2020, p. 48). Additionally, the “LADWP Project Baseline Scenario” models all components of the proposed Project except for the treatment wetlands. As such, the results of this scenario have been compared to the results of the Master Plan Proposed Scenario to determine whether stormwater runoff or the treatment wetlands had the greater impact on water quality.

The Water Quality Model found that implementation of the Stormwater Capture Projects under both the Master Plan Proposed Scenario and the LADWP Project Baseline Scenario would contribute runoff and increase the following pollutants within the SLRC reservoirs: suspended solids and sediment; total dissolved solids (TDS) concentrations; bacteria; copper and lead concentrations; and nitrogen and phosphorus concentrations.

The Water Quality Model projected the following with regard to overall water quality conditions under the LADWP Project Baseline Scenario (stormwater capture without treatment wetlands) and Master Plan Proposed Scenario (stormwater capture with treatment wetlands):

- Suspended solids concentrations were very similar under each scenario, with only a slight decrease observed under the Master Plan Proposed Scenario.
- TDS concentrations would increase at a faster rate under the LADWP Project Baseline Scenario, whereas TDS concentrations under the Master Plan Proposed Scenario would remain below the TDS limits set for similar bodies of water after 20 years.
- Bacteria concentrations under the LADWP Project Baseline Scenario would occasionally exceed total coliform limits, whereas the Master Plan Proposed Scenario was projected to exceed the limit once over the course of 20 years due to the wetland treatment systems.
- Copper and lead concentrations would be similar under each scenario, with only a slight decrease observed under the Master Plan Proposed Scenario.
- Nitrogen concentrations exceed limits under the LADWP Project Baseline Scenario due to additions of Pollock Well Water, whereas treatment wetlands under the Master Plan Proposed Scenario reduce nitrogen concentrations.

The results summarized above suggest that the proposed Project would not result in a substantially greater or worse impact to water quality conditions in the SLRC if all other components analyzed under the Master Plan Proposed Scenario are implemented, regardless of receiving runoff from the Stormwater Capture Projects. In fact, elimination of stormwater supplies would likely reduce the amount of pollutants that would have otherwise entered the
SLRC and would be a net benefit to water quality conditions when compared to the future conditions predicted in the model. The results of the Water Quality Model would therefore remain accurate with respect to the proposed Project’s impacts on water quality. The analysis below will rely on Water Quality Model’s findings for the Master Plan Proposed Scenario as a conservative estimate of future water quality conditions.

**Water Quality Model and Water Supplies**

Water levels in the reservoirs were projected to be similar under all modeled scenarios receiving Pollock Wellfield groundwater supplies regardless of receiving additional supplies from Stormwater Capture Projects (CWE 2020, p. 30). Furthermore, elimination of the additional runoff supplies from the Stormwater Capture Projects would have no effect on the volume and frequency of groundwater pumping from Pollock Wellfield during operations. Therefore, the results of the Water Quality Model remain accurate with respect to the proposed Project’s impacts on groundwater supplies.

**Pollock Wellfield Supply Reliability**

The Water Quality Model for the 2020 SLRC Master Plan was based on the assumption that Pollock Well #3 water would be available throughout the operation of the proposed Project. However, as discussed in Section 3.10.1, *Environmental Setting*, LADWP has since incorporated operable flexibility into the proposed refill operations that would allow reservoir water to be lowered below levels suitable for wetland growth and sustainability during drought emergencies. Temporary restrictions on groundwater water supplies would have the potential to reduce the water quality benefits of the proposed wetlands and degrade water quality in Silver Lake and Ivanhoe Reservoirs relative to the impacts described below. Although immediate impacts to water quality would not occur, the water quality in the SLRC reservoirs would have the potential to degrade gradually to reflect similar results of Water Quality Model’s “Isolated Baseline” scenario the longer groundwater refill operations are paused. The results of the Master Plan Proposed Scenario would therefore remain accurate in the short term but could become increasingly inaccurate over time under emergency drought conditions. Since groundwater supplies are currently available, Pollock Wellfield groundwater is considered a baseline condition. Therefore, the analysis below considers the Water Quality Model’s findings for the Master Plan Proposed Scenario to be accurate.

Other changes to the proposed Project that have occurred since the year 2020, such as the addition of off-site parking spaces on existing streets, would have no effects with respect to the proposed Project’s impacts on water supplies or water quality.

**3.10.4 Project Design Features**

No specific project design features are proposed with regard to hydrology and water quality.
3.10.5 Impacts and Mitigation Measures

Water Quality

Impact 3.10-1: Would the proposed Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction

Construction of the proposed Project and offsite improvements would include the use of heavy-duty equipment for vegetation grubbing and other ground disturbing activities, including demolition, trenching, paving, and mass grading and excavation. The proposed construction activities would include stockpiling of soils and construction materials at the site and would require the use of hazardous materials such as fuels and oils, paints and thinners, and solvents and cleaning solutions. Sediment and other pollutants generated during construction would have the potential to be mobilized and transported by stormwater runoff (nonpoint-source pollution), potentially degrading surface and groundwater quality on- and off-site. In addition, hazardous materials associated with construction equipment could adversely affect water quality if spilled or stored improperly and transported by stormwater runoff. In the absence of planned mitigation during construction, stormwater runoff would have the potential to substantially degrade surface water quality in the Silver Lake and Ivanhoe Reservoirs, and Ballona Creek.

Because the overall footprint of construction activities would exceed one acre, construction of the proposed Project would require compliance with the NPDES General Construction Permit and its required preparation and implementation of a SWPPP to comply with Section 402 of the federal CWA (refer to Section 3.10.2, Regulatory Framework, NPDES Construction General Permit). In accordance with the requirements of the permit, the proposed Project would require the preparation and implementation of a site-specific SWPPP that adheres to the Watershed Protection Division of LASAN’s BMP Handbook. As part of the proposed Project, temporary netting would be installed near the reservoirs to prevent soils and other materials from dumping or spreading into the reservoirs during construction. The SWPPP would include specific BMPs to prevent sediment and pollutants from contacting stormwater and moving into downstream receiving waters including the two reservoirs. (See Section 3.10.2, Regulatory Framework, NPDES Construction General Permit).

Compliance with hazardous materials regulations would ensure that excavated soils are transported, used, stored, and disposed of in a safe manner to protect worker safety, and reduce the potential for a release of hazardous materials into the environment. Materials containing lead-based paint (LBP), asbestos-containing material (ACM), or other hazardous building debris would be removed from the proposed Project site prior to the start of demolition activities as required under the California Code of Regulations (CCR) Title 8. The regulations require that all work with these materials must be conducted by a State-certified professional who would be responsible for ensuring compliance with all applicable regulations. Compliance with applicable federal, State, and local requirements concerning the handling, storage and disposal of hazardous waste, such as applicable provisions of 22 CCR, would reduce the potential for construction of the Project to release contaminants into surface water and groundwater.
The proposed Project would comply with the NPDES Construction General Permit requirements, including the preparation and implementation of a SWPPP and BMPs, and applicable federal, State, and local requirements concerning the handling, storage, and disposal of hazardous materials, potential violations of water quality standards and/or waste discharge requirements. The proposed Project would result in a less than significant impact.

**Mitigation Measures:**
None Required

**Significance Determination:**
Less than Significant Impact

**Operation**
As shown in Table 3.10-3, the proposed Project may change the water function of all or a portion of the SLRC (Refer to Section 3.10.2, *Regulatory Framework, Water Quality Control Plan for the Los Angeles Region*). The proposed Project would construct wetland habitats and may introduce fish species to the reservoirs, and therefore may result eventually to a change in the designated beneficial uses within the Basin Plan as outlined in Table 3.10-3. Public access to the water is not being considered as part of the proposed Project except through guided kayak tours conducted by an ecologist. The reservoir would remain in compliance with designated water quality standards if future water quality conditions do not exceed the designated water quality goals established in the Basin Plan, which are listed Table 3.10-2 (Refer to Section 3.10.2, *Regulatory Framework, CWA Section 303: Water Quality Standards and Implementation Plans*).

As described previously, the Water Quality Model estimated future water quality conditions under the Master Plan Scenario, which accounts for effects of the proposed Project. The results of the Water Quality Model indicate that the proposed Project would provide a significant water quality benefit for nitrogen, phosphorus, chlorophyll, and algae\(^{10}\) within the SLRC compared to existing conditions. Concentrations of copper and lead may increase due to the introduction of groundwater and stormwater. However, the modeling results indicate that implementation of the proposed Project would not result in exceedances of most of the water quality goals, with the possible exception of total coliform bacteria limits (See Table 3.10-2). Although the Water Quality Model predicted that total coliform limits could be exceeded, this would occur for only one day over the 20-year modeling timespan. Further, absent implementation the proposed wetland habitats under the proposed Project, water quality impacts from bird droppings would result in coliform being exceeded on 14 days (CWE 2020). The proposed Project would therefore result in a reduction to total coliform under the Master Plan Scenario, representing a water quality benefit. Therefore, impacts to designated beneficial uses and associated water quality standards as a result of the proposed Project would be less than significant. The results of the Water Quality Model for existing and future nutrient and contaminant concentrations in the SLRC are listed in Table 3.10-4. Note that the modeled concentrations would all be within the regulatory numerical limits.

\(^{10}\) Chlorophyll-a and algae concentrations were modeled and depended on phosphorus concentrations.
### TABLE 3.10-4
**WATER QUALITY MODEL RESULTS**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Existing Baseline Scenario*</th>
<th>Master Plan Scenario</th>
<th>Numerical Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Silver Lake</td>
<td>Ivanhoe</td>
<td>Silver Lake</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>1.2 mg/L</td>
<td>2.2 mg/L</td>
<td>0.2 mg/L</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>0.058 mg/L</td>
<td>0.053 mg/L</td>
<td>0.019 mg/L</td>
</tr>
<tr>
<td>Chlorophyll-a</td>
<td>12.0 µg/L</td>
<td>11.3 µg/L</td>
<td>5.2 µg/L</td>
</tr>
<tr>
<td>Dissolved Oxygen</td>
<td>7.9 mg/L</td>
<td>7.9 mg/L</td>
<td>7.9 mg/L</td>
</tr>
<tr>
<td>Total Copper</td>
<td>8.0 µg/L</td>
<td>4.3 µg/L</td>
<td>16.7 µg/L</td>
</tr>
<tr>
<td>Total Lead</td>
<td>0.8 µg/L</td>
<td>0.4 µg/L</td>
<td>4.9 µg/L</td>
</tr>
<tr>
<td>Total Coliform</td>
<td>0 days</td>
<td>0 days</td>
<td>0 days</td>
</tr>
</tbody>
</table>

* Water Quality Model results for existing baseline water quality conditions, including Pollock Well water.
** Following initial depreciation period.
MPN = most probable number; ml = milliliters

SOURCE: CWE 2020

The beneficial water quality impacts described above are attributed primarily to the proposed wetland terraces and floating wetland habitats. The proposed wetland terraces and transition habitat areas would mimic the water quality processes of treatment wetlands that use biological processes to remove nutrients through transformation and uptake by microbes and plants. Floating treatment wetlands would improve water quality by allowing aquatic plant roots to grow in the water column, and would be as effective as conventional flow-through wetlands at nitrogen and phosphorus removal (CWE 2020). As described in Section 2.7.2, Horticulture Maintenance and Water Management, SLRC water management would include water quality monitoring as well as maintenance activities in the reservoirs to sustain the water quality treatment function of the proposed wetlands, such as the removal of dead plant material, inspections for trash and debris accumulation, repairs to undercut areas and erosion, and vector control. Once an operator has been determined, the operator and the City would prepare and ensure implementation of Operations and Maintenance Procedures, which would include a Wetlands Management Plan section that outlines methods and frequency for the maintenance of the shoreline wetland areas and floating wetland features in a manner sufficient to maintain water quality goals. The Plan will include at a minimum vegetation clearing methods, replanting triggers and methods, wildlife avoidance measures, nesting bird avoidance measures, debris disposal methods and frequency, points of contact for responsible parties, reporting methods and frequencies. Potential impacts of the proposed wetlands related to mosquitos and their potential to transmitting diseases to people are discussed under Impact 3.9-1 in Section 3.9, Hazards and Hazardous Materials.

As described in Section 3.10.1, Environmental Setting, Water Quality, Pollock Wellfield extracts groundwater from Basin 4-12, which has been impacted by contamination plumes from hexavalent chromium and from VOCs such as TCE and PCE (CWE 2019). Groundwater supplies would be pumped into the reservoirs similar to the existing conditions (Refer to Impact 3.10-2), and would be subject to RWQCB WDRs requiring treatment of Basin 4-12 groundwater to ensure
water quality objectives are met. Therefore, the proposed Project would not affect the rate or change the direction of movement of existing contaminants, expand the area affected by contaminants, or result in an increased level of contamination for the existing Basin 4-12 contamination plumes.

Stormwater diversions into the reservoirs would also be subject to water quality objectives outlined in Table 3.10-2. Stormwater BMPs such as bioswales and the proposed wetlands would assist in maintaining stormwater quality entering the reservoirs. As described in Section 2.7, Project Operations and Maintenance, and PDF-UTIL-3, decentralized drainage strategies would be incorporated into the design of the proposed Project. Areas adjacent to the reservoir, such as the great lawn and seating terraces, would be designed for surface runoff to move thorough the proposed habitat island areas before entering the reservoirs. The natural bioremediation processes present in the wetland plants and soils would filter out contaminants in water, and are a treatment control BMP as described in the LACDPW LID Standards Manual. In other areas, stormwater runoff would be treated by infiltration gardens located throughout the SLRC. Stormwater falling on the outer boundary of the SLRC would drain southwest to the Ballona Creek watershed similar to existing conditions and routed into the municipal stormwater system, and would be required to comply with the standards of the MS4 permit and LADPW Hydrology Manual discussed in Section 3.10.2, Regulatory Framework. With implementation of the decentralized drainage strategy and compliance with MS4 and LADPW requirements, the water quality impacts of the proposed Project related to stormwater runoff would remain less than significant.

Operation of newly constructed or enhanced buildings such as the proposed Multi-Purpose Facility and Education Center would contain small quantities of cleaning solutions stored inside the building. Spills of chemicals, if any, would be contained inside the building and quickly cleaned up. Source control measures per the City’s LID requirements, including good housekeeping, removal of trash and maintenance of driveways and parking areas, and proper use and storage of pesticides, would also reduce surface water quality impacts and would prevent pollutants from entering groundwater by percolation within landscaped areas or other permeable surfaces. Any on-site use of hazardous materials to be used in association with operation of the Project, such as small quantities of potentially hazardous materials in the form of cleaning solvents, painting supplies, pesticides for landscaping, and pool maintenance, as well as fuel storage associated with maintenance and/or emergency equipment, would be contained, stored, and used in accordance with manufacturers’ instructions and handled in compliance with applicable standards and regulations, such that no hazardous materials be exposed to or otherwise would adversely impact groundwater quality. Impacts would be less than significant.

Operation of the proposed Project would not result in discharges that violate any water quality standards or waste discharge requirements; rather, it would improve water quality compared to existing conditions. Therefore, impacts resulting from Project operation with respect to surface water quality and groundwater quality would be less than significant.

Mitigation Measures:
None Required
Significance Determination:
Less than Significant Impact

Groundwater Supplies

Impact 3.10-2: Would the proposed Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Construction

The proposed Project site consists of isolated water bodies that do not discharge or substantially contribute to groundwater recharge under normal operations. Construction activities for the proposed Project and offsite improvements would not require drainage of the reservoirs or alterations to bottom of the basin. Thus, water which is lost through seepage in the reservoirs would continue to percolate into the adjacent watershed and infiltrate into groundwater Basin 4-11 similar to existing conditions. Limited amounts of water typically required for construction activities would be supplied by water trucks and would not require use of Basin 4-12 groundwater from Pollock Wellfield #3. Therefore, construction of the proposed project would not impede sustainable management of groundwater basins and the impact would be less than significant.

Mitigation Measures:
None Required

Significance Determination:
Less than Significant Impact

Operation

Operation of the proposed Project would result in direct alteration of the landscape, including approximately 11.5 acres of asphalt paving that would impact the site’s capacity for groundwater recharge. The addition of the paving would reduce recharge within the footprint of the new pavement. However, the proposed Project would implement a decentralized drainage strategy to redirect that stormwater into the reservoirs. The existing footprint of the reservoir would continue to be a source of recharge to groundwater at existing levels through seepage as the bottom of the reservoir would not be altered. Any reduction in seepage to the groundwater basin from within the unpaved park areas would be negligible. Further, stormwater on the outer boundaries of the SLRC would runoff into the existing storm drain network to the Ballona Creek Watershed or infiltrate into Basin 4-11 similar to existing levels, and would be required to comply with applicable MS4 and LADPW regulations. Impacts with regard to physical alterations of the SLRC to groundwater supplies and sustainable management of Basin 4-11 are therefore considered less than significant.

The proposed Project includes a suggested water level elevation range between elevations 445 and 447 feet for optimal wetland habitats growth and sustainability. It is anticipated that continuous flows of Basin 4-12 groundwater would be needed when the reservoir elevation is low, and sporadic pumping of groundwater would be required every three to six hours when reservoir elevations are high. Although it is anticipated that the proposed Project would require
more frequent pumping to maintain water levels to sustain the proposed wetland habitats, the results of the Water Quality Report indicate that the proposed Project would reduce the average volumes of groundwater required to refill the SLRC each year. The proposed Project would require pumping 227 AFY of groundwater from Pollock Well #3, whereas 241 AFY are currently needed to maintain water levels under existing operations (CWE 2020).

Further, as discussed in Section 2.7.3, Drought Emergency Contingencies, operational constraints may require modifications to the water levels corresponding to overall system needs, including the need to prioritize use of local groundwater to augment potable water supplies during periods of drought. LADWP utilizes conjunctive use strategies to balance supplies with dry period demands, while also preventing overdraft of its basins. During previous successive dry-year periods, LADWP pumped groundwater at greater-than-average rates for the first few years of the dry period, then lowered its pumping rates and increased surface water use in subsequent years to facilitate groundwater replenishment (LADWP 2021). Thus, during emergency drought conditions, groundwater supplies typically available for pumping into the Silver Lake and Ivanhoe Reservoirs from the Pollock Wellfield may be limited. Such a reduction in groundwater availability may require water levels in the reservoirs to be temporarily adjusted lower than suggested levels (between 445 and 447 feet). If possible, water levels would be held at levels high enough to maintain varied shallow wading habitat for waterfowl within the proposed wetland terraces in accordance with the Wetlands Management Plan (Refer to Section 2.7.1, Operation and Maintenance Plans). The ability to curtail groundwater pumping during emergency droughts that would normally be supplied to the reservoirs would reduce impacts to the groundwater basin, while ensuring that potable water demands relying on groundwater are met. The proposed Project would therefore result in no impact in relation to groundwater supplies.

As discussed in Section 3.10.1, Groundwater, Basin 4-12 is designated as a very low priority basin under the SGMA, and does not have specific groundwater management plans (DWR 2021). Further, the proposed Project would result in a reduction in the amount of groundwater supplies which are pumped into the reservoirs for existing operations. Compliance of the proposed refill operations with applicable federal, State, and local regulations related to sustainable groundwater management is required. Impacts are considered less than significant.

Mitigation Measures:
None Required

Significance Determination:
Less than Significant Impact
Alteration of Drainage Patterns

Impact 3.10-3: Would the proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows?

Construction

As discussed under Impact 3.9-1, construction of the proposed Project would include the use of heavy-duty equipment for vegetation grubbing and other ground disturbing activities, including demolition, trenching, paving, and mass grading and excavation. Ground disturbing activities could temporarily alter existing drainage patterns and flows on the proposed Project site by exposing the underlying soils, modifying flow direction, and making the Project site temporarily more permeable. Exposed and stockpiled soils could be temporarily subject to erosion and conveyance into nearby storm drains during storm events. Sediment and other pollutants generated during construction would have the potential to be mobilized and transported by stormwater runoff, potentially degrading surface and groundwater quality on- and off-site.

Because the proposed construction site would be greater than one acre, the proposed Project would require the preparation and implementation of a site-specific SWPPP that adheres to the Watershed Protection Division of LASAN’s BMP Handbook. Construction activities would be temporary, and flow directions and runoff volumes during construction would be controlled. As discussed under Impact 3.10-1, construction of the proposed Project would comply with NPDES Construction General Permit requirements including preparation of a SWPPP, implementation of BMPs, and compliance with applicable City grading regulations. Therefore, construction of the proposed Project would not substantially alter the drainage patterns of the Project site in a manner that would result in substantial changes to drainage patterns or associated erosion, sedimentation, flooding, exceedance of drainage system capacities, or impeding or redirecting flood flows. The proposed Project would result in a less-than-significant impact.

Mitigation Measures:

None Required

Significance Determination:

Less than Significant Impact

Operation

The proposed Project would implement facilities that would increase areas of impermeable surfaces, which could result in increased runoff rates and/or quantities. In addition, operation of the proposed Project would include decentralized drainage facilities which would cause increased surface runoff to enter the reservoirs. As described in Section 3.10.1, Site Drainage and Existing Topography, LADWP maintains water levels in the reservoirs several feet below the overflow
elevation. As such, the existing overflow spillway does not discharge water from within the SLRC to the LACFCD storm drain system west of the proposed dam under normal operating conditions (CWE 2020). Operation of the proposed Project would not require physical alterations to overflow spillway, or result in substantial increases to water levels in the reservoirs due to proposed drainage facilities and groundwater pumping, which could increase the likelihood for discharge. As discussed above for Impact 3.10-2, operational constraints, particularly during prolonged drought conditions, may require lower water levels. However, in the unlikely event of discharge due to increases in water levels, the spillway has capacity to convey 74 cubic feet per second (LADWP 1973). Further, the natural bioremediation processes present in the wetland plants and soils would filter out contaminants in water prior to potential discharge. As required under DSOD regulations, LADWP would continue to monitor weather and lower the water levels in the reservoirs in advance of an anticipated storm event to prevent overtopping the reservoirs or exceeding the stormwater drainage capacity west of the reservoir. Stormwater falling on the outer boundary of the SLRC would drain southwest to the Ballona Creek watershed similar to existing conditions and routed into the municipal stormwater system.

Therefore, the proposed Project would continue to capture stormwater within the proposed Project site. Compliance with applicable federal, State, and local regulations, such as those regulating stormwater runoff in the MS4 and LADPW Hydrology Manual, would ensure impacts remain less than significant with regard to flood flows, erosion, and runoff.

Impacts of the proposed Project would not impede or redirect flood flows. Impacts pertaining to erosion and runoff would be less than significant.

**Mitigation Measures:**
None Required

**Significance Determination:**
Less than Significant Impact

**Flood Hazard, Tsunami, or Seiche**

**Impact 3.10-4: Would the proposed Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?**

As discussed in Section 3.10.1, *Tsunami and Seiche Hazards*, the proposed Project site is not located in an area subject to tsunamis, and would not have the potential to result in impacts. Impacts relative to the release of pollutants associated with flood hazards are analyzed above in Impacts 3.10-1 and 3.10-2, which concluded a less than significant impact. Operation-related impacts for Impact 3.10-1 concluded a less than significant impact with incorporation of mitigation. Impacts relative to seiches and flooding due to dam failure are analyzed below.

**Construction**

As described in Section 3.10.1, *Flood Hazards*, inundation maps indicate that flooding would occur in highly populated areas downstream of Silver Lake Dam and upstream of Ivanhoe Dam in the unlikely event of a dam breach. Thus, the downstream flood hazard for the existing reservoirs
is considered to be extremely high (DSOD 2021). Further, seiches due to seismic and wind-driven wave activity have the potential to occur within the Silver Lake and Ivanhoe Reservoirs due to the proximity of several active faults in the region (DOC 2022b).

The proposed Project would construct structures and other facilities within the reservoirs, such as overlooks, terraces, and a floating dock. Pile foundations would be installed in waterside construction areas to strengthen the soil layers within the reservoir bed, which would make them stable enough for the foundation of a structure for supporting the weight of pedestrians. In addition, the proposed Project would construct new walkways or improvements along the dams to allow connection across the reservoirs. As described in Section 3.10.2, Regulatory Framework, Department of Water Resources Division of Safety of Dams, SB 92 requires EAPs be updated (at minimum) every 10 years or when there are significant changes at a dam, its critical appurtenant structures, or downstream hazard classification (DSOD 2019). Construction of the Project facilities would not result in changes to the dam or critical appurtenant structures. Therefore, updates to the EAP would not be required.

As dam enlargements, repairs, alterations, and removals require review and approval by DSOD, construction of the proposed facilities in and around the three dams (Silver Lake Dam, Ivanhoe Dam, and the Divider Dam) would be subject to more restrictions and oversight. Design of the proposed Project has taken these restrictions into consideration based on a preliminary coordination with DWR and a courtesy review by the DSOD. For example, some of the DSOD constraints include restrictions on the types of vegetation allowed on the land designated as a dam; thus, embankment edges within DSOD jurisdictional areas are proposed to be resurfaced with smooth concrete to comply with DSOD development requirements, whereas embankment edges outside the DSOD jurisdictional areas and those related to habitat terraces may be softened by planting native groundcovers. However, future design of facilities within DSOD jurisdictional areas would require additional review and approval of by LADWP and DSOD prior to construction to reduce potential impacts to the safety of the dams and reservoirs. Coordination with DWR’s DSOD, and compliance with applicable regulations during construction would ensure that impacts relative to flooding would be less than significant.

During construction, the reservoir water levels would be decreased from existing conditions. The lower water levels would decrease the potential for a damaging seiche, in the event of an earthquake, resulting in an impact of less than significant.

**Mitigation Measures:**

None Required

**Significance Determination:**

Less than Significant Impact

**Operation**

As described in Section 3.10.1, Flood Hazards, given that the existing reservoirs are within a closed basin, the Silver Lake and Ivanhoe Reservoirs would not be considered to be at risk from flooding due to a 100-year storm event. Issues with flood hazards associated with the proposed
Project are related to dam safety and inundation areas. LADWP would continue to have operational responsibilities for the SLRC, such as maintaining the integrity of the dams and active use and maintenance of LADWP onsite facilities. Regular coordination with DWR’s DSOD DWR for dam safety inspections is required. Further, if substantial changes to the dam, its appurtenant structures, or downstream hazard classifications occur in the future, the proposed Project would be required to comply with notification procedures in the EAP. Compliance with applicable regulations, monitoring requirements, and notification procedures during operation of the proposed Project would result in less than significant impacts to flooding.

The reservoir basin is situated at lower elevation than surrounding areas at the proposed Project site. Surface water elevations in the reservoirs would be maintained at levels several feet below the top of the embankments. Operation, maintenance, and monitoring of the reservoirs by LADWP in compliance with applicable regulatory requirements would ensure that the proposed Project would not result in inundation or pollutant release due to seismic or wind-related seiches. Therefore, impacts would be less than significant.

Mitigation Measures:
None Required

Significance Determination:
Less than Significant Impact

**Water Quality Control Plan or Sustainable Groundwater Management Plan**

Impact 3.10-5: Would the proposed Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As discussed in Section 3.10.1, *Environmental Setting*, the Project site is not located within a high or medium priority groundwater basin and therefore is not subject to a sustainable groundwater management plan.

**Construction**

Implementation of the proposed Project would include ground disturbing activities, such as excavation, trenching, and grading. Sediment and other pollutants generated during construction would have the potential to be mobilized and transported by stormwater runoff (nonpoint-source pollution), potentially degrading surface and groundwater quality on- and off-site.

As discussed in Impact 3.10-1, the proposed Project would comply with the conditions stipulated in the Construction General Permit. In accordance with the requirements of the permit, the proposed Project would require the preparation and implementation of a site-specific SWPPP that adheres to the Watershed Protection Division of LASAN’s BMP Handbook. The SWPPP required by the Construction General Permit would include BMPs to minimize impacts related to site runoff, and would ensure that excavated soils are transported, used, stored, and disposed of in a safe manner to protect worker safety, and reduce the potential for a release of hazardous materials into the environment.
Through compliance with the NPDES Construction General Permit requirements, including the preparation and implementation of a SWPPP and BMPs, and applicable federal, State, and local requirements concerning the handling, storage, and disposal of hazardous materials, the proposed Project would not conflict with or obstruct implementation of the Basin Plan. Impacts would be less than significant.

**Mitigation Measures:**
None Required

**Significance Determination:**
Less than Significant Impact

**Operation**
As discussed under Impact 3.10-1, substantial degradations to water quality within the SLRC and off-site surface water and groundwater would not occur during operation of the proposed Project, primarily due to beneficial water quality impacts of the proposed wetland terraces and floating wetland habitats. Further, implementation of the decentralized drainage strategy in compliance with MS4 and LADPW requirements reduce the potential for stormwater runoff to result in substantial water quality impacts to the reservoirs or off-site surface water and groundwater. The proposed Project would be consistent with the goals of the Basin Plan related to surface and groundwater quality.

As discussed under Impact 3.10-2, the proposed Project would result in less groundwater supplies being pumped from Pollock Well #3 for reservoir refill operations. Compliance of the proposed Project with applicable federal, State, and local regulations related to sustainable groundwater management is required during design and implementation of the required refill operations. Therefore, the proposed Project would be consistent with the goals of the Basin Plan, resulting in a less than significant impact.

**Mitigation Measures:**
None Required

**Significance Determination:**
Less than Significant Impact

**Cumulative Impact**
**Impact 3.10-6: Would the proposed Project construction and operation, when considered with related projects in the geographic scope, result in a cumulatively impact to hydrology and water quality?**

Table 3-2 in Chapter 3, *Environmental Setting, Impact Analysis, and Mitigation Measures* identifies thirteen related projects that are planned or are under construction within the Project area. The geographic scope of analysis for cumulative hydrology and water quality impacts encompasses and is limited to the Project site and its immediately adjacent area. This is because impacts relative to hydrology and water quality are generally site-specific. For example, the effect of erosion to water quality would tend to be limited to the localized area of a Project and could
only be cumulative if erosion occurred as the result of two or more adjacent projects that spatially overlapped. Two of the thirteen related projects listed in Table-3-2 are adjacent to the proposed Project. Related Project 13 includes water infrastructure improvements within Silver Lake and Ivanhoe Reservoirs at the Project site and Related Project 14 would involve sidewalk repairs along roadways located adjacent to the Project site. Due to their location, ground disturbing activities that would occur during construction of Related Projects 13 and 14 could result in impacts to stormwater pollution at the Project site. Operational activities for the projects would not involve ground disturbing activities or substantial use of groundwater supplies that could impact hydrology and water quality (LADWP 2020b; City of Los Angeles 2019). Additionally, it should be noted that future water quality impacts of the Aeration and Recirculation System Project (Related Project 13) within the Silver Lake and Ivanhoe Reservoirs were estimated in the Water Quality Model, where it was determined beneficial impacts would occur during operations.

As discussed in Section 3.7, Geology, Soils, and Mineral Resources, the state Construction General Permit would require the proposed Project and all related projects greater than one acre to prepare and implement a SWPPP. The SWPPP would describe BMPs to control runoff and prevent erosion or degradation of water quality for each project. Through compliance with this requirement, the potential for erosion and water quality impacts would be reduced. The Construction General Permit has been developed to address cumulative conditions arising from construction throughout the state, and is intended to maintain cumulative effects of projects subject to this requirement below levels that would be considered significant. For example, two adjacent construction sites would be required to implement BMPs to reduce and control the release of sediment and/or other pollutants in any runoff leaving their respective sites. The runoff water from both sites would be required to achieve the same action levels, measured as a maximum amount of sediment or pollutant allowed per unit volume of runoff water. Thus, even if the runoff waters were to combine after leaving the sites, the sediments and/or pollutants in the combined runoff would still be at concentrations (amount of sediment or pollutants per volume of runoff water) below action levels and would not be cumulatively considerable.

As described above in Section 3.10-1, groundwater supplies used to fill the reservoirs are obtained from the Upper Los Angeles River Area (ULARA) watershed managed by the ULARA Watermaster. The ULARA Watermaster is responsible for ensuring the San Fernando Groundwater Basin does not experience overdraft conditions. None of the other related projects would receive water supply from groundwater, since they would require connections with LADWP’s potable water service. Conformance with the Watermaster’s Groundwater Management Plan would ensure that the proposed Project would not contribute to a depletion in groundwater supplies. Consequently, the proposed Project would not contribute significantly in combination with related projects to cumulative groundwater impacts.

A described above in Section 3.10.2, Regulatory Framework, Regional, Los Angeles County Municipal Separate Storm Sewer System Permit, the Project and related projects would be required to comply with the regional MS4 Permit. Under the Los Angeles County MS4 Permit, permittees are required to implement a development planning program to address stormwater pollution. This program requires project applicants for certain types of projects to implement a LID Plan to reduce the discharge of pollutants in stormwater by outlining BMPs, which must be
incorporated into the design of new development and redevelopment. The purpose of the MS4 Permit is to improve the quality of the cumulative runoff in Los Angeles County, and locally, for the Ballona Creek watershed. Compliance with the requirements of the MS4 permit would minimize water quality degradation and would be consistent with the Basin Plan.

The proposed Project would not alter drainages, but would contribute to stormwater runoff capture to improve runoff quality compared to existing conditions. Furthermore, the proposed project would not be affected by tsunamis, and would not increase the potential for seiche waves. As a result, the proposed Project’s contribution to water quality impacts considering the existing urban environment and related projects, would not be considerable. Impacts would be less than significant.

**Mitigation Measures:**
None Required

**Significance Determination:**
Less than Significant Impact

### 3.10.6 Summary of Impacts

**Table 3.10-5** summarizes the impact significance determinations and lists mitigation measures related to energy.

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<th>Impact</th>
<th>Mitigation Measure</th>
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<tr>
<td>3.10-2: Groundwater Supplies</td>
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<td>LTS</td>
</tr>
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<td>3.10-3: Alteration of Drainage Patterns</td>
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<td>LTS</td>
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<td>3.10-4: Flood Hazard, Tsunami, or Seiche</td>
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<td>3.10-5: Water Quality Control Plan or SGMA</td>
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<tr>
<td>3.10-6: Cumulative</td>
<td>None Required</td>
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</table>

**NOTES:**
NI = No Impact, no mitigation proposed
LTS = Less than Significant, no mitigation proposed
LTSM = Less than Significant Impact with Mitigation Incorporated
SU = Significant and Unavoidable

### 3.10.7 References


———, 2020b. Ivanhoe Dam (Silver Lake Reservoir) Sunny Day Dam Breach Flood Arrival Times Los Angeles County, California State Dam ID: 6.051 & National Dam ID: CA00081.


Personal communication, Los Angeles Department of Water and Power, July 2022.


