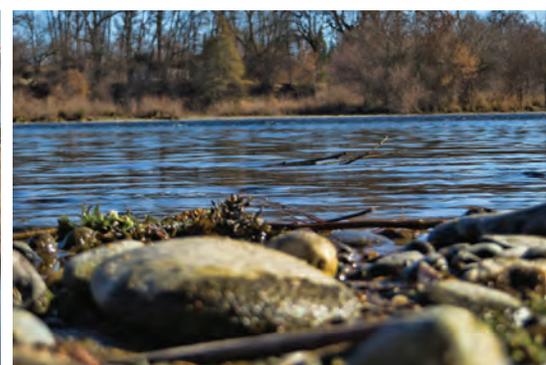


City of  
**SACRAMENTO**

**Draft  
Environmental  
Impact Report**

City of Sacramento  
Groundwater Master  
Plan Well Replacement  
Program



**SCH # 2022030709**

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## EXECUTIVE SUMMARY

This Draft Environmental Impact Report (Draft EIR) programmatically assesses the potential environmental impacts of the Groundwater Master Plan Well Replacement Program (proposed Project or Project). The City of Sacramento (City) is the California Environmental Quality Act (CEQA) lead agency. Inquiries regarding this document and project should be directed to:

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### ES.1 Project Overview

The proposed Project involves the replacement of up to 38 municipal groundwater production wells that are at or near the end of their useful life as identified in the City's 2017 Groundwater Master Plan. The Project includes exploratory drilling, well drilling and equipping, installation of connections to the below ground drinking water distribution and sanitary sewer systems, and the destruction of up to 38 existing active and inactive wells that are being replaced.

#### ES.1.1 Project Objectives

The objectives of the Well Replacement Program are:

- Develop new groundwater extraction wells in accordance with Project siting and design criteria in the Groundwater Master Plan to replace City wells that are at or near the end of their useful life.
- Ensure the replacement well program meets the City's 2040 future projections for land use, water demand and supply by constructing wells that produce approximately 1,250 gallons per minute.
- Ensure the full functionality of the City's wells to meet existing and projected water demand.
- Solidify the City's capacity to extract groundwater more reliably, including during extremely dry years, to allow diversification of the City's water supply portfolio as climate and regulatory changes may impact future availability of surface water supplies.
- Effectively manage water supplies in a conjunctive manner to ensure long-term water supply security for the City and sustainability of both surface and groundwater supplies.

### PROJECT PURPOSE AND NEED

The purpose of the proposed Well Replacement Program is to replace City groundwater wells that are at the end of their useful life. Due to climate change, extremely dry years are expected to be

more frequent and intense, and maintaining the City's capability to extract groundwater more reliably will allow the City to diversify its water supply portfolio. In addition, the frequency of wildfires within the upstream watershed is causing surface water treatment challenges. Climate and regulatory changes may impact future availability of the City's surface water supply, and thus, a reliable groundwater supply is needed to ensure long-term sustainability of both supplies.

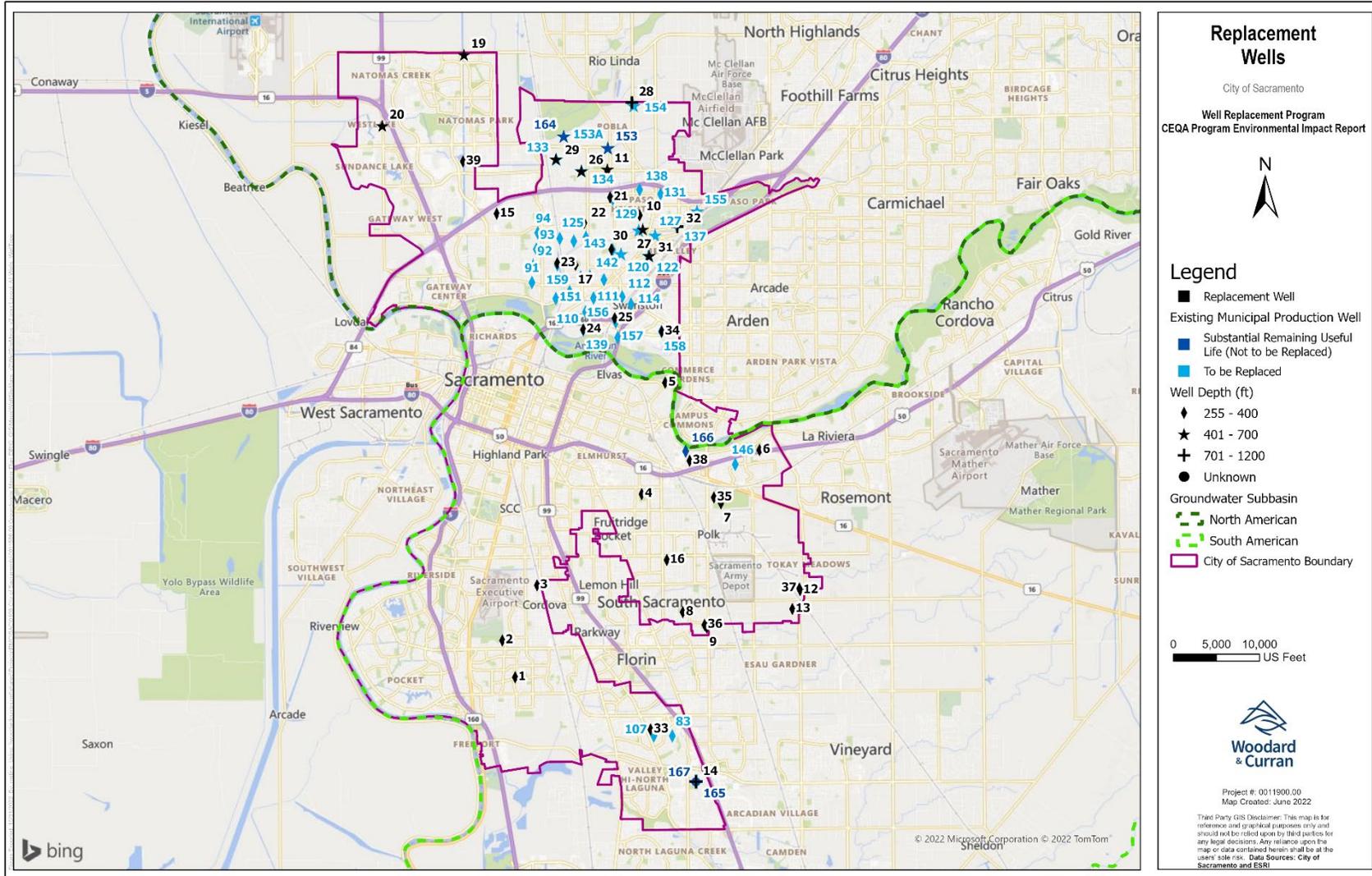
The Groundwater Master Plan is a strategic guide for future planning that describes the role of groundwater in the City's water supply portfolio and presents a plan for managing groundwater in the context of long-term water supply security and implementation of the Sustainable Groundwater Management Act (SGMA) of 2014. The Groundwater Master Plan provides recommendations for changes to existing groundwater operations, new groundwater-related infrastructure, and potential conjunctive use alternatives to allow the City to reliably meet its long-term water supply demands. Based on these recommendations, specific potential groundwater projects are identified and prioritized for the City's consideration. Included in the Groundwater Master Plan is a program to replace the City's existing wells that are found to be at or near the end of their useful life. Replacement planning was found to be necessary because many of the current well locations are too small to accommodate same-site well replacement, and groundwater quality concerns impact or threaten the ability to utilize many of the City's existing wells. As such, new locations are required for most replacement wells.

## **PROJECT LOCATION**

The proposed Project is located in the City of Sacramento, as shown in **Figure ES-1**. The 38 replacement well sites are located throughout the City's water service area, which overlies the North American and South American Subbasins of the Sacramento Valley Groundwater Basin. Of the 38 proposed replacement well sites, 20 sites are located within the North American Subbasin and 18 sites are located within the South American Subbasin. This represents 11 new wells in the South American Subbasin total, compared to existing conditions in which there are six active and inactive wells.

The replacement well sites are proposed within residential, commercial, and industrial areas, schools, parks, and existing public facilities, such as existing City well sites, water storage facilities, and water treatment facilities. These well site locations were selected based on siting criteria in the Groundwater Master Plan and subject to change based on the results of exploratory drilling and site-specific design.

Figure ES-1: Project Location



## PROPOSED PROJECT

The proposed Project includes the construction, operation, and long-term maintenance of 38 wells, including above-ground wellhead facilities, as well as below ground drinking water distribution and sanitary sewer system connections. Replacement wells would be constructed to produce approximately 1,250 gallons per minute of groundwater when in full operation. Wells in areas with groundwater quality concerns would require the construction and operation of necessary treatment systems. The Project also includes destruction of the 38 existing City wells and would take place after the replacement well is fully operational. The proposed Project components consist of:

- Exploratory drilling prior to well construction to characterize the site- and depth-specific geologic and water quality considerations prior to well design;
- Well design and well drilling, with well depths ranging from 255 feet to 1,000 feet below ground surface (bgs) in the North American Subbasin, and 314 to 1,200 feet bgs in the South American Subbasin;
- Well equipping, including construction of above-grade facilities, such as pumps, filters, flow meters, chlorination and fluoridation equipment, and electrical appurtenances, as well as construction of below grade pipelines to connect the replacement wells to the drinking water distribution and sanitary systems; and
- Well destruction, including well decommissioning and capping.

Wells would be sited, designed, and installed in accordance with the siting and design criteria specified in the Groundwater Master Plan. For wells that require additional water quality treatment, larger treatment systems would be constructed at the well site.

## PROPOSED SCHEDULE

The City would replace the 38 municipal wells over a period of approximately 15 years with a range of one to four wells constructed in any given year. For the well destruction stage, the City would destroy approximately one to four wells per year over the next approximately 25 years. This generalized schedule is based on the estimated remaining useful life of the existing wells identified to be replaced, though the schedule could be longer if any individual wells perform adequately longer than currently expected.

### ES.1.2 Summary of Alternatives

This Draft EIR evaluates the proposed Project, the No Project Alternative, and a Minimum Groundwater Use Alternative. Identification of the No Project Alternative and Minimum Use Alternative was informed by Project objectives as presented in *Section 2.2. Project Objectives* and an alternatives screening conducted for the Project. The Alternatives, as discussed in *Chapter 4 Alternatives*, are summarized as follows:

**No Project Alternative:** this alternative assumes that the proposed Project would not be constructed. Operation of the City's groundwater well network would continue, similar to current operations, however without replacements, more wells would be taken out of service as they reach the end of their useful life, and any remaining operating wells would likely require increased maintenance and improvements for the short-term to continue to function. Without well replacements, the aging well infrastructure could pose high-risk of failure and affect the City's water supply reliability over the long-term.

**Minimum Use Alternative:** this alternative, which was based on the modeling scenario in the 2017 Groundwater Master Plan, includes continuation of current pumping rates with existing active wells replaced as they come to the end of their useful life. Fewer replacement wells would be installed (24 compared to 38 of the proposed Project), with fewer associated construction and operational impacts. Under this alternative, groundwater withdrawal would be approximately the same level or potentially a greater level as compared to future conditions baseline (i.e., existing pumping capacity with year 2040 projected supply demand). The 2017 Groundwater Master Plan determined groundwater extractions would have a 0.032 million gallons per day (MGD) pumping capacity compared to 0.051 MGD of the proposed Project, with impacts to the groundwater subbasins occurring at a smaller scale overall.

### ES.1.3 Areas of Controversy

During the Notice of Preparation (NOP) public review period and EIR scoping meeting held for the proposed Project, comments included requests to evaluate potential impacts to biological resources, groundwater subbasins, hazards and hazardous materials, noise, and water quality. These concerns are addressed in Chapter 3 of this Draft EIR.

### ES.1.4 Summary of Impacts

**Table ES-1** provides a summary of potential Project impacts by topic area. The table does not include impacts or criteria that were deemed not applicable to activities associated with the proposed Project.

Findings presented in the table are indicated using the following abbreviations:

- NI: No Impact
- LTS: Less than Significant (does not require mitigation)
- LSM: Less than Significant with Mitigation
- PS: Potentially Significant
- SU: Significant and Unavoidable

**Table ES-2: Well Replacement Program Impact Summary**

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<b>3.1 Aesthetics</b>			
AES-1: In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.	PS	<p><b>Mitigation Measure AES-1:</b> Design of Aboveground Structures</p> <p>To avoid conflicts with zoning and other policies related to scenic quality, aboveground structures (such as control buildings, well facilities and any treatment systems) shall be designed to blend into the existing visual character of their surroundings, including building and wall height, color, exterior architectural treatments, lighting, and landscaping.</p>	LSM
AES-2: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	PS	<p><b>Mitigation Measure AES-2:</b> Low Illumination Nighttime Construction Lighting</p> <p>To minimize impacts from construction nighttime lighting, all nighttime construction lighting shall be of the lowest illumination necessary for Project construction, attached to motion sensors, and shielded and directed downward to avoid light spillage onto neighboring properties. Additionally, where feasible, warm lighting tones shall be selected. If not feasible, shielding or other measures shall be implemented to avoid light spillage onto neighboring properties.</p>	LSM
<b>3.2 Air Quality</b>			
AIR-1: Conflict with or obstruct implementation of the applicable air quality plan.	PS	<p><b>Mitigation Measure AIR-1:</b> Basic Construction Fugitive Dust Emissions Control Practices</p> <p>The following Basic Construction Emissions Control Practices for controlling fugitive dust from a construction site shall be implemented during construction.</p> <ul style="list-style-type: none"> <li>• Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.</li> <li>• Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.</li> <li>• Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.</li> <li>• Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).</li> <li>• All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>• As required by SMAQMD Rule 403, and enforced by SMAQMD staff, fugitive dust emissions shall not be allowed beyond the property line from which construction originates. Reasonable precautions shall include, but are not limited to:</li> <li>• Use, where possible, of water or chemicals for control of dust in construction operations.</li> <li>• Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.</li> <li>• Other means approved by the Air Pollution Control Officer.</li> </ul> <p><b>Mitigation Measure AIR-2:</b> Construction Diesel Exhaust Emission Control</p> <p>The following practices, which describe exhaust emission control from diesel powered fleets, shall be implemented at the construction site. California regulations limit idling from both on-road and off-road diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations.</p>	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> <li>Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.</li> <li>Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].</li> </ul> <p><b>Mitigation Measure AIR-3:</b> Construction Equipment Inspection and Maintenance Although not required by local or state regulation, the construction contractor shall have an equipment inspection and maintenance program to ensure work and fuel efficiencies. The program shall maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.</p> <p><b>Mitigation Measure AIR-4:</b> Phasing of Well Drilling To ensure that daily emissions of NOX do not exceed the SMAQMD significance threshold, prior to the start of construction, the City or its designee shall prepare a plan, to the satisfaction of the SMAQMD, that demonstrates the construction phasing schedule will achieve maximum daily NOX emissions of 85 lbs/day or less. If a plan is not prepared, the City shall limit Project construction activities such that a maximum of three wells are under construction at any one time, or the City shall submit a final report at the end of each construction year to demonstrate compliance. If construction-generated emissions of NOX as modeled in the final report are not reduced to a level below SMAQMD's recommended maximum daily level of 85 lbs/day or less, then the City shall pay a mitigation fee into SMAQMD's off-site mitigation program. By paying the appropriate off-site mitigation fee, construction-generated emissions of NOX would be reduced to a less-than-significant level. The fee calculation to offset daily NOX emissions shall be based on the SMAQMD-determined cost to reduce one ton of NOX applicable at the time (currently \$30,000 per ton but subject to change in future years).</p>	
AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	PS	<p><b>Mitigation Measure AIR-1:</b> above, shall apply.  <b>Mitigation Measure AIR-2:</b> above, shall apply.  <b>Mitigation Measure AIR-3:</b> above, shall apply.  <b>Mitigation Measure AIR-4:</b> above, shall apply.</p>	LSM
AIR-3: Expose sensitive receptors to substantial pollutant concentrations.	LTS	No mitigation is required	LTS
<b>3.4 Biological Resources</b>			
BIO-1: Substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service.	PS	<p><b>Mitigation Measure BIO-1:</b> Protocol-Level Special-Status Plant Surveys Conduct protocol-level special-status plant surveys in April and May within areas of non-native grassland and suitable wetlands at well sites 7, 11, 12, 13, 15, 20, 21, 24, 28, 31, 32 and 37. The surveys shall be performed in accordance with those described by resource experts and agencies (CNPS, 2001; CDFW, 2018a; USFWS, 1999). If individuals or populations are observed, they shall be mapped and notes regarding size of population, quality of habitat and potential threats taken. Populations shall be avoided to the greatest extent practical, with a recommended minimum 25-foot buffer from the edge of the population. Prior to Project activities within the vicinity of the populations, the population and associated 25-foot buffer shall be flagged or otherwise made visible. No work shall occur within that flagged area and personnel shall avoid entering the area to the greatest extent practical.</p> <p>If avoidance of a population or individual is not practical, a Habitat Mitigation and Monitoring Plan (HMMP) shall be drafted for the species being impacted. The HMMP shall provide guidance for restoring, enhancing and/or creating suitable habitat for the species being impacted, and shall also provide success criteria which will ensure success of mitigation efforts. Mitigation ratios shall be a minimum of 2:1 for either percent cover</p>	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>or number of individuals. The HMMP shall be final upon approval by the City of Sacramento and interested regulatory agencies.</p> <p><b>Mitigation Measure BIO-2a:</b> Initial Ground Disturbing Activities Outside of Swainson’s Hawk Nesting Season Initial ground disturbing activities will commence outside of the SWHA nesting season (March 1- September 15).</p> <p><b>Mitigation Measure BIO-2b:</b> Focused Swainson’s Hawk Surveys If initial ground disturbing activities will commence during the SWHA nesting season (March 1- September 15), surveys based on CDFW’s survey protocol shall be conducted. These surveys will include a pre-arrival assessment conducted between January 1 and March 1, to identify areas with suitable nesting sites within 0.25 miles of the well sites that will have activity in that year. The survey extent will include areas up to 0.5 miles for well sites located in the NBHCP area (well sites 15, 19, 20, 23 and 39). For well sites determined to have suitable nesting habitat within 0.25 miles or within 0.5 miles in the NBHCP area surveys will be conducted for SWHA nesting during the nest-building period (April 1-April 30) if work will begin between April 1 and May 30. For activities that will commence after June 1, surveys for active nests will be conducted between June 1 and August 1. Any active nests shall be avoided at a distance sufficient to ensure that nest abandonment will not occur, and this distance shall be determined through observation of the nest by a qualified biologist.</p> <p><b>Mitigation Measure BIO-3:</b> Focused Burrowing Owl Surveys An assessment survey for burrowing owls shall be conducted at all well sites by a qualified biologist within a week prior to the start of any new Project activities (vegetation removal, grading, or other initial ground-disturbing activities) regardless of time of year. The survey shall be conducted in a sufficient area around the well site to identify the location and status of any nests that could potentially be directly or indirectly affected by vegetation removal, or ground disturbing activities if these activities commence between February 1 and August 31, the timeframe that corresponds to the burrowing owl nesting season. If the results of the survey indicate that burrowing owl may be impacted by Project activities or if the well site is in the NBHCP area, the following measure shall apply:</p> <ul style="list-style-type: none"> <li>• Preconstruction surveys in accordance with CDFW burrowing owl guidelines shall be conducted, summarized as: The Project Area and surrounding area (up to 500 feet if habitat has potential to support burrowing owl and no barriers preclude burrowing owls) shall be traversed on foot to detect burrowing owls. The survey will be conducted using transects spaced no more than 50 feet apart. For sites determined to have potential to support nesting burrowing owls, at least 3 site visits for burrowing owl shall occur between April 15 and July 15, with at least one site visit after June 15. Visits are to be at least 15 days apart.</li> <li>• If any burrowing owl nest is identified during preconstruction surveys, the applicant shall comply with a CDFW guidelines regarding the minimization of impacts to the burrowing owl, including not disturbing an occupied nest during nesting season (February 1 through August 31) unless a qualified biologist approved by the Department verifies through noninvasive methods that either:             <ol style="list-style-type: none"> <li>(1) the owls have not begun egg-laying and incubation; or</li> <li>(2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.</li> </ol> </li> </ul> <p>Any owls identified in the preconstruction surveys shall be relocated to appropriate locations using passive relocation techniques approved by the CDFW [CDFG] and mitigation for impacts to burrowing owl nests shall be provided and funded by the applicant in accordance with CDFG guidelines and requirements.</p>	

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p><b>Mitigation Measure BIO-4:</b> Focused Valley Elderberry Longhorn Beetle Surveys                      Prior to initial ground disturbance, a survey for the valley elderberry longhorn beetle (VELB) host plant, Sambucus, will be conducted at all sites where Sambucus has been detected (well sites 38 and 24) and all sites within the NBHCP. Sambucus plants, if detected, shall be avoided by at least 20 feet from the dripline of the plant and this avoidance buffer shall be clearly demarcated using lathe and flagging. If Sambucus plants with a stem diameter of greater than 1 inch cannot be avoided, they shall be inspected for evidence of VELB presence and if any evidence of VELB is detected, the plants shall be avoided and consultation with the USFWS shall occur to determine next steps, which may include relocation of the plant. If the well site where the Sambucus is located is in the NBHCP, new consultation would not be required, but removal of Sambucus shall be conducted and mitigated for in accordance with the NBHCP.</p> <p><b>Mitigation Measure BIO-5a:</b> Ground Disturbance and Work Activities During Dry Season                      Ground disturbance activities at well sites 2, 24, 28, and 30 shall be conducted in the dry season (May through October) and work at other sites shall be in the dry season to the greatest extent practical. Work within 200 feet of wetlands and ephemeral ditches will occur only in the dry season (June 1-October 31) and only in dry soils. Wetlands will be avoided by at least 100 feet and best management practices shall be implemented to prevent any potential increased erosion of sediment or turbid water from Project activities into these features. If work is to be conducted from November through April, silt fencing shall be installed prior to ground disturbance around the perimeter and associated 25-foot buffer of avoided wetlands and the top of bank of drainage canals. Silt fencing adjacent to drainage canals shall be installed the greatest distance possible from the top of bank, while still maintaining prevention of runoff into the feature.</p> <p><b>Mitigation Measure BIO-5b:</b> Focused Vernal Pool Fairy Shrimp Surveys                      Prior to initial ground disturbance, protocol-level surveys for vernal pool fairy shrimp (VPFS) will be conducted at all sites with potential to support VPFS (well sites 2, 24, 28, and 30). If VPFS are detected, and cannot be avoided, a permit for take coverage of the species, pursuant to the Federal Endangered Species Act will be acquired prior to commencement of Project Activities.</p> <p><b>Mitigation Measure BIO-6:</b> Nesting Bird Surveys                      A survey for active bird nests shall be conducted at all well sites by a qualified biologist no more than 14 days prior to the start of Project activities (exploratory drilling, vegetation removal, grading, or other initial ground-disturbing activities) if ground disturbing activities commence during the nesting season (February through August 31). The survey shall be conducted in a sufficient area around the well site to identify the location and status of any nests that could potentially be directly or indirectly affected by vegetation removal or grading activities. For white-tailed kite, the survey area shall extend at least 0.25 miles from the area of potential disturbance. Based on the results of the pre-construction breeding bird survey, the following measure shall apply:</p> <ul style="list-style-type: none"> <li>If active nests of protected species are found within the well site, or close enough to the area to affect nesting success, a work exclusion zone shall be established around each nest. Established exclusion zones shall remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zones shall be established by a qualified biologist; sizes vary dependent upon bird species, nest location, existing visual buffers, ambient sound levels, and other factors; an exclusion zone radius may be as small as 25 feet (for common, disturbance-adapted species) or more than 250 feet for raptors. Listed species are typically provided more extensive exclusion zones, which may be specific to the species and/or follow CDFW guidance. Exclusion zone size may also be reduced from established levels if supported with nest monitoring by a qualified biologist indicating that work activities are not adversely impacting the nest.</li> </ul>	

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>BIO-2: Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.</p>	<p>PS</p>	<p><b>Mitigation Measure BIO-5a:</b> above, shall apply.  <b>Mitigation Measure BIO-7a:</b> Wetland Delineation                      A wetland delineation shall be conducted at well sites 2, 12, 13, 28, 29 30 and 37 to confirm previous site evaluations and collect information on the three wetland parameters at each of the potential wetlands, according to the methods described in the USACE Wetlands Delineation Manual (“Corps Manual”; Environmental Laboratory 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (“Arid West Supplement”; USACE 2008), and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (Lichvar and McColley, 2008). Arid West data forms shall be filled out and a report on the results will be provided. The report will provide the information and results of the delineation. A final jurisdictional determination shall be obtained from the USACE if deemed necessary.  <b>Mitigation Measure BIO-7b:</b> Avoidance of Wetlands                      Any wetlands within the Study Area shall be avoided. A 25-foot buffer around the perimeter of each wetland shall be included and avoided. Prior to ground disturbance, the 25-foot buffer shall be clearly flagged by a qualified biologist. If wetlands cannot be avoided, appropriate permits shall be obtained from the appropriate regulatory agencies (e.g., CDFW, RWQCB and USACE). Mitigation measures outlined in the permits shall be followed; however, mitigation ratios shall be no less than 1:1 for impacted wetland acreage which follows the City of Sacramento 2035 General Plan EIR Policy ER 2.1.6, which requires on- or off-site preservation of equal amounts impacted. If impacts to seasonal wetlands shall occur, mitigation may include but are not limited to on-site restoration/enhancement/creation, or purchase of credits at an approved mitigation bank. <b>Mitigation Measure BIO-5a</b> as described above shall also be implemented for the protection of wetlands.  <b>Mitigation Measure BIO-8:</b> Focused Creeping Ryegrass Flats Surveys                      Prior to ground disturbance or staging of materials at well site 28, the edge of the creeping ryegrass flats and associated 10-foot buffer shall be flagged by a qualified biologist and shall be avoided. If Project activities cannot avoid the buffered area, then a Habitat Mitigation and Monitoring Plan (HMMP) shall be drafted. The HMMP shall provide guidance for restoring, enhancing, and/or creating suitable habitat for the creeping ryegrass flat, and shall also provide success criteria which will ensure success of mitigation efforts. Mitigation ratios shall be a minimum of 2:1 for percent cover. The HMMP shall be final upon approval by the City of Sacramento and interested regulatory agencies.</p>	<p>LSM</p>
<p>BIO-3: Substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.</p>	<p>PS</p>	<p><b>Mitigation Measure BIO-5a:</b> above, shall apply.  <b>Mitigation Measure BIO-7a:</b> above, shall apply.  <b>Mitigation Measure BIO-7b:</b> above, shall apply.</p>	<p>LSM</p>
<p>BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.</p>	<p>LTS</p>	<p>No mitigation required.</p>	<p>LTS</p>
<p>BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.</p>	<p>PS</p>	<p><b>Mitigation Measure BIO-5a:</b> above, shall apply.  <b>Mitigation Measure BIO-7a:</b> above, shall apply.  <b>Mitigation Measure BIO-7b:</b> above, shall apply.</p>	<p>LSM</p>
<p><b>3.4 Cultural Resources</b></p>			
<p>CUL-1: Substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.</p>	<p>PS</p>	<p><b>Mitigation Measure CUL-1:</b> Conduct Cultural Resources Sensitivity and Awareness Training Program Prior Ground-Disturbing Activities                      The City shall require the contractor to provide a cultural resources sensitivity and awareness training program (Worker Environmental Awareness Program [WEAP]) for all personnel involved in Project</p>	<p>LSM</p>

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>construction, including field consultants and construction workers. The WEAP will be developed in coordination with an archaeologist meeting the Secretary of the Interior’s Professional Qualifications Standards for Archeology. The WEAP shall be conducted before any Project-related construction activities begin at the Project site. The WEAP will include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations.</p> <p>The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resource that could be located at the Project site and will outline what to do and who to contact if any potential cultural resources are encountered. (See also <b>Mitigation Measure TCR-1</b>)</p> <p><b>Mitigation Measure CUL-2:</b> In the Event that Cultural Resources are Discovered During Construction, Implement Avoidance and Minimization Measures to Avoid Significant Impacts and Procedures to Evaluate Resources</p> <p>If cultural resources (such as structural features, unusual amounts of bone or shell, artifacts, or human remains) are encountered at the Project site during construction, work shall be suspended within 100 feet of the find (based on the apparent distribution of cultural materials), and the construction contractor shall immediately notify the Project’s City representative. Avoidance and preservation in place are the preferred manner of mitigating impacts to cultural resources and tribal cultural resources. This will be accomplished, if feasible, by several alternative means, including:</p> <ul style="list-style-type: none"> <li>• Planning construction to avoid tribal cultural resources, archaeological sites and/or other cultural resources; incorporating cultural resources within parks, green-space or other open space; covering archaeological resources; deeding a cultural resource to a permanent conservation easement; or other preservation and protection methods agreeable to consulting parties and regulatory authorities with jurisdiction over the activity.</li> <li>• Recommendations for avoidance of cultural resources and tribal cultural resources will be reviewed by the City representative and other appropriate agencies, in light of factors such as costs, logistics, feasibility, design, technology and social, cultural and environmental considerations, and the extent to which avoidance is consistent with Project objectives. Avoidance and design alternatives may include realignment within the Project site to avoid cultural resources, modification of the design to eliminate or reduce impacts to cultural resources or modification or realignment to avoid highly significant features within a cultural resource.</li> <li>• If the discovered cultural resource can be avoided, the construction contractor(s), will install protective fencing outside the site boundary, including a 100-foot buffer area, before construction restarts.</li> <li>• The construction contractor(s) will maintain the protective fencing throughout construction to avoid the site during all remaining phases of construction. The area will be demarcated as an “Environmentally Sensitive Area”.</li> <li>• If a cultural resource cannot be avoided, the following performance standard shall be met prior to continuance of construction and associated activities that may result in damage to or destruction of cultural resources or tribal cultural resources:</li> <li>• Each resource will be evaluated for California Register of Historical Resources- (CRHR) eligibility through application of established eligibility criteria (California Code of Regulations 15064.636).</li> </ul> <p>If a cultural resource is determined to be eligible for listing in the CRHR, the City will avoid damaging effect to the resource in accordance with California PRC Section 21084.3, if feasible. The City shall coordinate the investigation of the find with a qualified archaeologist (meeting the Secretary of the Interior’s Professional Qualifications Standards for Archeology) approved by the City. A written report detailing the site assessment coordination activities, and management recommendations shall be provided to the City representative by</p>	

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		the qualified archaeologist. These recommendations will be documented in the Project record. (See also <b>Mitigation Measure TCR-2</b> )	
CUL-2: Substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5.	PS	<b>Mitigation Measure CUL-1:</b> above, shall apply. <b>Mitigation Measure CUL-2:</b> above, shall apply.	LSM
CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries.	PS	<b>Mitigation Measure CUL-3:</b> Implement Procedures in the Event of the Inadvertent Discovery of Human Remains  If an inadvertent discovery of human remains is made at any time during Project-related construction activities or Project planning, the following performance standards shall be met prior to implementing or continuing actions such as construction, which may result in damage to or destruction of human remains. In accordance with the California Health and Safety Code (HSC), if human remains are encountered during ground-disturbing activities, the City shall immediately halt potentially damaging excavation in the area of the remains and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (HSC Section 7050.5[b]).  If the human remains are of historic age and are determined to be not of Native American origin, the City will follow the provisions of the HSC Section 7000 (et seq.) regarding the disinterment and removal of non-Native American human remains. (See also <b>Mitigation Measure TCR-3</b> ).	LSM
<b>3.5 Energy</b>			
ENE-1: Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	LTS	No mitigation is required.	LTS
ENE-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	LTS	No mitigation is required.	LTS
<b>3.6 Geology and Soils</b>			
GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic groundshaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides.	LTS	No mitigation is required.	LTS
GEO-2: Result in substantial soil erosion or the loss of topsoil.	LTS	No mitigation is required.	LTS
GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	LTS	No mitigation is required.	LTS
GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	LTS	No mitigation is required.	LTS
GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geographic feature.	PS	<b>Mitigation Measure GEO-1:</b> Unanticipated Fossil Discovery  To reduce the potential for impacts to paleontological resources the following procedures shall be adhered to for all ground disturbing activities.  Prior to the start of construction, a qualified paleontologist shall be retained to prepare a paleontological resources Worker Environmental Awareness Program (WEAP) training. The WEAP training will include the types of fossils that may be encountered, the procedures to be followed if unanticipated paleontological resources are unearthed at the Project site, contact information for the paleontological personnel, and the regulatory requirements for the protection of paleontological resources. All earthmoving personnel and the supervisors shall receive the WEAP training prior to beginning work on the site.  In the event of unanticipated paleontological resource discoveries, all activities in the vicinity of the discovery (50-foot buffer) shall be temporarily halted until a qualified paleontologist has documented and evaluated the resource(s), completed the appropriate mitigation and treatment of the resource(s), and authorized work in the discovery area to resume. If determined to be significant, the paleontological resource(s) shall be	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		collected and transferred to a paleontological laboratory for preparation, identification, and analysis, and curated at an accredited fossil repository. If paleontological resources are discovered, and upon conclusion of ground disturbing activities, a paleontological mitigation report shall be prepared that documents the dates of field work, methods, fossil analyses, significance evaluations, conclusions, and an itemized list of specimens.	
<b>3.7 Greenhouse Gas Emissions</b>			
GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	PS	<p><b>Mitigation Measure GHG-1: Phasing of Well Drilling</b> To ensure that annual emissions of GHG do not exceed the SMAQMD significance threshold, prior to the start of construction of any replacement well, the City or its designee shall provide documentation that includes a licensed engineer's or qualified analyst's estimate of the annual GHG emissions from construction that demonstrates the construction phasing schedule will achieve maximum annual GHG emissions of 1,100 MTCO<sub>2</sub>e/year or less. If a plan is not prepared, the City shall limit Project construction activities such that, in any single year, a maximum of two wells are constructed.</p> <p><b>Mitigation Measure GHG-2: Fleet Electrification</b> In order for the Project to be consistent with the Mayor's Commission on Climate Change target that all public shared fleets be fully electrified by 2045, prior to the commencement of operations of any Project well the City shall provide documentation that includes a licensed engineer's or qualified analyst's estimate of the average annual CO<sub>2</sub>e emissions from the Project's O&amp;M vehicle fleet. The documentation shall demonstrate that O&amp;M activities will be conducted using a carbon-zero vehicle fleet by 2045, the year in which the City currently seeks to achieve carbon zero.</p> <p><b>Mitigation Measure GHG-3: SolarShares Participation</b> Prior to the commencement of operations of any Project well, the City shall provide documentation that includes a licensed engineer's or qualified analyst's estimate of the average annual CO<sub>2</sub>e emissions from the well's electricity consumption in operational years 2030 and 2045. The documentation shall include the number of wells that participate in the SolarShares program in addition to the baseline participation of 124 (well 22), 156 (well 25), and 158 (well 34). If total CO<sub>2</sub>e from well electricity consumption exceeds 1,100 CO<sub>2</sub>e/year in operational year 2030, then the City shall enroll 62 percent of the replacement wells in the SolarShares program or provide an equivalent level of the Project's electricity from renewable power. If total CO<sub>2</sub>e from well electricity consumption exceeds 0 CO<sub>2</sub>e/year in operational year 2045, then the City shall enroll all replacement wells in the SolarShares program or provide an equivalent level of the Project's electricity from renewable power.</p> <p><b>Mitigation Measure GHG-4: Purchase of Carbon Offsets for Methane GHG Emissions</b> Prior to the commencement of operations of any Project well, the City shall provide documentation that includes a licensed engineer's estimate of the average annual net methane (CH<sub>4</sub>) emissions that have been deemed to be unavoidable to operations due to infeasibility of methane capture or reduction technologies. The documentation shall include verification of purchase and retirement of credits to offset the methane emissions to net zero for each year of operations during the 40-year life of the Project, using verified carbon offset credits.  The carbon offset credits shall be from a registry approved by CARB, and be quantified and verified using protocols that are consistent with the criteria identified in the California Code of Regulations, title 17, section 95972 – namely that they be real; permanent; quantifiable; verifiable; additional as defined by Health and Safety Code section 38562, subdivisions(d)(1) and (d)(2) and California Code of Regulations, title 17, section 95802, subdivision (a); and enforceable. In addition, any offsets originating outside California must have GHG emissions programs equivalent to, or more stringent than, California's cap and trade program. Within 120 days of City approval of the documented emissions estimates, the City shall provide evidence that carbon</p>	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		offset credits have been purchased and retired for the purpose of offsetting the City-approved emissions estimates for the 40-year life of the Project.	
GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	PS	<b>Mitigation Measure GHG-1:</b> above, shall apply. <b>Mitigation Measure GHG-2:</b> above, shall apply. <b>Mitigation Measure GHG-3:</b> above, shall apply. <b>Mitigation Measure GHG-4:</b> above, shall apply.	LSM
<b>3.8 Hazards and Hazardous Materials</b>			
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	LTS	No mitigation is required.	LTS
HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	PS	<b>Mitigation Measure HAZ-1:</b> Hazardous Materials Management and Spill Prevention and Control Plan Before construction begins, the City shall prepare a Hazardous Materials Management Spill Prevention and Control Plan that includes a project-specific contingency plan for hazardous materials and water operations. The Plan will be applicable to construction activities and will establish policies and procedures according to applicable codes and regulations, including but not limited to the California Building and Fire Codes, and federal and OSHA regulations. The Plan will include, but is not limited to the following: <ul style="list-style-type: none"> <li>• A discussion of hazardous materials management, including delineation of hazardous material storage areas, access and egress routes, waterways, emergency assembly areas, and temporary hazardous waste storage areas;</li> <li>• Notification and documentation of procedures; and</li> <li>• Spill control and countermeasures, including employee spill prevention/response training.</li> </ul>	LSM
HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	PS	<b>Mitigation Measure HAZ-1:</b> above, shall apply. <b>Mitigation Measure HAZ-2:</b> Well Construction and Chemical Deliveries at Schools The City will coordinate with school officials for proposed well sites located at schools to schedule well construction when school is not in session and schedule chemical deliveries before or after school hours.	LSM
HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would it create a significant hazard to the public or the environment.	PS	<b>Mitigation Measure HAZ-3:</b> Environmental Site Assessment and Remediation or Well Relocation After exploratory drilling and before construction begins, a Phase 1 Environmental Site Assessment will be conducted for each proposed municipal well site to identify contaminated sites at or near each proposed well site that pose a hazard for construction or to the City's potable water supply. In the event that a recognized environmental concern exists, additional investigation would be conducted, typically under a Phase II Environmental Site Assessment, to identify the presence and extent of any contamination that would need remediation, or a Well Relocation Plan would be developed to determine if the well location could be moved to a location that is not affected by contaminant releases. Remediation, if needed, would be conducted in accordance with federal and state requirements for remediation of soil and/or groundwater contamination with oversight by the appropriate local and/or state agency, such as the County of Sacramento, RWQCB and/or DTSC.	LSM
HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	PS	<b>Mitigation Measure TRA-1:</b> below, shall apply	LSM
<b>3.9 Hydrology and Water Quality</b>			
HYD-1: Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.	LTS	No mitigation is required.	LTS
HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.	LTS	No mitigation is required.	LTS

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
HYD-3: 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: <ul style="list-style-type: none"> <li>a) Result in a substantial erosion or siltation on or off site</li> <li>b) Substantially increase the rate or amount of surface run-off in a manner that would result in flooding on or off site</li> <li>c) Create or contribute run-off water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted run-off, or</li> <li>d) Impede or redirect flood flows.</li> </ul>	LTS	No mitigation is required.	LTS
HYD-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation.	LTS	No mitigation is required.	LTS
HYD-5: Conflict with or obstruct implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan.	LTS	No mitigation is required.	LTS
<b>3.10 Noise and Vibration</b>			
NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	PS	<p><b>Mitigation Measure NOI-1: Noise Barriers</b>                      The City shall require its contractor to install temporary construction noise barriers prior to the start of well construction activities for all activities requiring “nighttime” work outside the hours of 7:00 a.m. to 6:00 p.m. or 9:00 a.m. to 6:00 p.m. on Sundays. These barriers shall follow the Federal Highways Administration Construction Noise Handbook guidance and block the line of sight between the equipment and the noise-sensitive receptor(s). The barriers shall provide enough noise attenuation that noise levels at nearby receptors meet the City’s Noise Control Ordinance. In residential areas this includes a minimum of 15 dBA of noise attenuation at residences 50 feet away from drilling activities. Due to the height of the drill rig, the noise barrier shall be at least 24 feet tall. The construction noise barrier shall be constructed of a material with a minimum weight of one pound per square foot with no gaps or perforations. It shall remain in place until conclusion of the nighttime construction activities. The Project plans and specifications shall include documentation from a noise consultant verifying the appropriate design details for an effective noise barrier.</p> <p><b>Mitigation Measure NOI-2: Construction Noise Reduction Measures</b>                      The City shall require its contractor to implement the following actions relative to construction noise:</p> <ul style="list-style-type: none"> <li>• The City shall conduct construction activities to between 7:00 a.m. and 6:00 p.m., on Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday, in accordance with the City of Sacramento Municipal Code, Section 8.68.080, with the exception of specific well drilling and testing activities, which require 24-hour continuous work.</li> <li>• Prior to construction, the City in coordination with the construction contractor, shall provide written notification to all properties within 1,000 feet of the construction site, informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact the City program manager with noise concerns. Prior to construction commencement, the City program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications.</li> <li>• Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise that would be directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., water tanks, roll-off dumpsters) shall be positioned between the noise source and sensitive receptors.</li> <li>• Equipment and staging areas shall be located as far from sensitive receptors as possible. At the staging location, equipment and materials shall be kept as far from adjacent sensitive receptors as possible.</li> </ul>	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> <li>Construction vehicles and equipment shall be maintained in the best possible working order; operated by an experienced, trained operator; and shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shield or shrouds).</li> <li>Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would require turning off equipment if it would idle for five or more minutes.</li> <li>Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.</li> <li>The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.</li> </ul>	
NOI-2: Generate excessive groundborne vibration or groundborne noise levels.	LTS	No mitigation is required.	LTS
<b>3.11 Recreation</b>			
REC-1: Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LTS	No mitigation is required.	LTS
<b>3.12 Transportation</b>			
TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	LTS	No mitigation is required.	LTS
TRA-2: Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).	LTS	No mitigation is required.	LTS
TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)	PS	<p><b>Mitigation Measure TRA-1:</b> Traffic Control Plan</p> <p>Prior to construction, the City of Sacramento shall require its construction contractor to prepare and implement a Traffic Control Plan, to be approved by the construction inspector and the City Transportation Division. The Traffic Control Plan may be prepared for the entire Project at once so long as enough construction specifics for each individual well are available; otherwise, a new plan or an amendment to the overarching plan shall be prepared for each construction activity. The Traffic Control Plan shall:</p> <ul style="list-style-type: none"> <li>Identify staging locations to be used during construction</li> <li>Identify safe ingress and egress points from staging areas</li> <li>Identify potential road or lane closures</li> <li>Establish haul routes for construction-related vehicle traffic</li> <li>Identify alternative safe routes to maintain pedestrian and bicyclist safety during construction</li> </ul> <p>The City's project manager shall coordinate with emergency services (police, fire, and others) to notify these entities regarding construction schedule, Project alignment and siting, and potential delays due to construction. The City shall identify roadways and access points for emergency services and minimize disruptions to or closures of these locations.</p> <p>The Traffic Control Plan shall include provisions for traffic control measures including barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic. The Traffic Control Plan shall be reviewed and approved by the City's project manager and the construction inspector prior to Project construction. The City's construction inspector shall also provide the construction schedule and Traffic Control Plan to the City Transportation Division for review to ensure that construction of the proposed Project does not conflict with other construction projects that may be occurring simultaneously in the Project vicinity.</p>	LSM
TRA-4: Result in inadequate emergency access.	PS	<b>Mitigation Measure TRA-1:</b> above, shall apply.	LSM

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p><b>3.13 Tribal Cultural Resources</b></p> <p>TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC, Section 21074, as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p> <ul style="list-style-type: none"> <li>i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC, Section 5020.1(k), or</li> <li>ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC, Section 5024.1(c). In applying the criteria set forth in PRC, Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.</li> </ul>	<p>PS</p>	<p><b>Mitigation Measure TCR-1:</b> Conduct Cultural Resources and Tribal Cultural Resources Sensitivity and Awareness Training Program Prior to Ground-Disturbing Activities</p> <p>The City shall require the applicant/contractor to provide a cultural resources and tribal cultural resources sensitivity and awareness training program (Worker Environmental Awareness Program [WEAP]) for all personnel involved in project construction, including field consultants and construction workers. The WEAP will be developed in coordination with culturally affiliated Native American tribes. The WEAP shall be conducted before any project-related construction activities begin at the project site. The WEAP will include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating state laws and regulations.</p> <p>The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resource and tribal cultural resources that could be located at the project site and will outline what to do and who to contact if any potential cultural resources or tribal cultural resources are encountered. The WEAP will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and will discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.</p> <p><b>Mitigation Measure TCR-2:</b> In the Event that Cultural Resources or Tribal Cultural Resources are Discovered During Construction, Implement Avoidance and Minimization Measures to Avoid Significant Impacts and Procedures to Evaluate Resources</p> <p>If cultural resources or tribal cultural resources (such as structural features, unusual amounts of bone or shell artifacts, or human remains) are encountered at the project site during construction, work shall be suspended within 100-feet of the find (based on the apparent distribution of cultural materials), and the construction contractor shall immediately notify the project’s City representative. Avoidance and preservation in place is the preferred manner of mitigating impacts to cultural resources and tribal cultural resources. This will be accomplished, if feasible, by several alternative means, including:</p> <ul style="list-style-type: none"> <li>• Planning construction to avoid tribal cultural resources, archaeological sites and/or other cultural resources; incorporating cultural resources within parks, green-space, or other open space; covering archaeological resources; deeding a cultural resource to a permanent conservation easement; or other preservation and protection methods agreeable to consulting parties and regulatory authorities with jurisdiction over the activity.</li> <li>• Recommendations for avoidance of cultural resources and tribal cultural resources will be reviewed by the City representative, interested culturally affiliated Native American tribes and other appropriate agencies, in light of factors such as costs, logistics, feasibility, design, technology and social, cultural and environmental considerations, and the extent to which avoidance is consistent with project objectives. Avoidance and design alternatives may include realignment within the project site to avoid cultural resources or tribal cultural resources, modification of the design to eliminate or reduce impacts to cultural resources or tribal cultural resources or modification or realignment to avoid highly significant features within a cultural resource or tribal cultural resource.</li> <li>• Native American representatives from interested culturally affiliated Native American tribes will be consulted on the analyses and shall have the opportunity to meet with the City representative and its representatives who have technical expertise to identify and recommend feasible avoidance and design alternatives, so that appropriate and feasible avoidance and design alternatives can be identified.</li> <li>• If the discovered cultural resource or tribal cultural resource can be avoided, the construction contractor(s), will install protective fencing outside the site boundary, including a 100-foot buffer area, before construction restarts. The boundary of a cultural resource or a tribal cultural resource will be</li> </ul>	<p>LSM</p>

Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>determined in consultation with interested culturally affiliated Native American tribes. Use of temporary and permanent forms of protective fencing will be determined in consultation with Native American representatives from interested culturally affiliated Native American tribes.</p> <ul style="list-style-type: none"> <li>The construction contractor(s) will maintain the protective fencing throughout construction to avoid the site during all remaining phases of construction. The area will be demarcated as an "Environmentally Sensitive Area".</li> </ul> <p>If a cultural resource or a tribal cultural resource cannot be avoided, the following performance standard shall be met prior to continuance of construction and associated activities that may result in damage to or destruction of cultural resources or tribal cultural resources:</p> <ul style="list-style-type: none"> <li>Each resource will be evaluated for California Register of Historical Resources (CRHR) eligibility through application of established eligibility criteria (California Code of Regulations 15064.636), in consultation with consulting Native American Tribes, as applicable.</li> </ul> <p>If a cultural resource or a tribal cultural resource is determined to be eligible for listing in the CRHR, the City will avoid damaging effects to the resource in accordance with California PRC Section 21084.3, if feasible. The City shall coordinate the investigation of the find with a qualified archaeologist (meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology) approved by the City and with interested culturally affiliated Native American tribes that respond to the City's invitation. As part of the site investigation and resource assessment, the City and the archaeologist shall consult with interested culturally affiliated Native American tribes to assess the significance of the find, make recommendations for further evaluation and treatment as necessary and provide proper management recommendations should potential impacts to the resources be determined by the City to be significant. A written report detailing the site assessment, coordination activities, and management recommendations shall be provided to the City representative by the qualified archaeologist. These recommendations will be documented in the project record. For any recommendations made by interested culturally affiliated Native American tribes that are not implemented, a justification for why the recommendation was not followed will be provided in the project record.</p> <p>Native American representatives from interested culturally affiliated Native American Tribes and the City representative will also consult to develop measures for long-term management of any discovered tribal cultural resources. Consultation will be limited to actions consistent with the jurisdiction of the City and taking into account ownership of the subject property. To the extent that the City has jurisdiction, routine operation and maintenance within tribal cultural resources retaining tribal cultural integrity shall be consistent with the avoidance and minimization standards identified in this <b>mitigation measure</b>.</p> <p>If the City determines that the project may cause a significant impact to a tribal cultural resource, and measures are not otherwise identified in the consultation process, the following are examples of mitigation capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to the resource. These measures may be considered to avoid or minimize significant adverse impacts and constitute the standard by which an impact conclusion of less-than significant may be reached:</p> <ul style="list-style-type: none"> <li>Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.</li> <li>Treat the resource with culturally appropriate dignity taking into account the Tribal cultural values and meaning of the resource, including, but not limited to, the following:             <ul style="list-style-type: none"> <li>Protect the cultural character and integrity of the resource.</li> </ul> </li> </ul>	

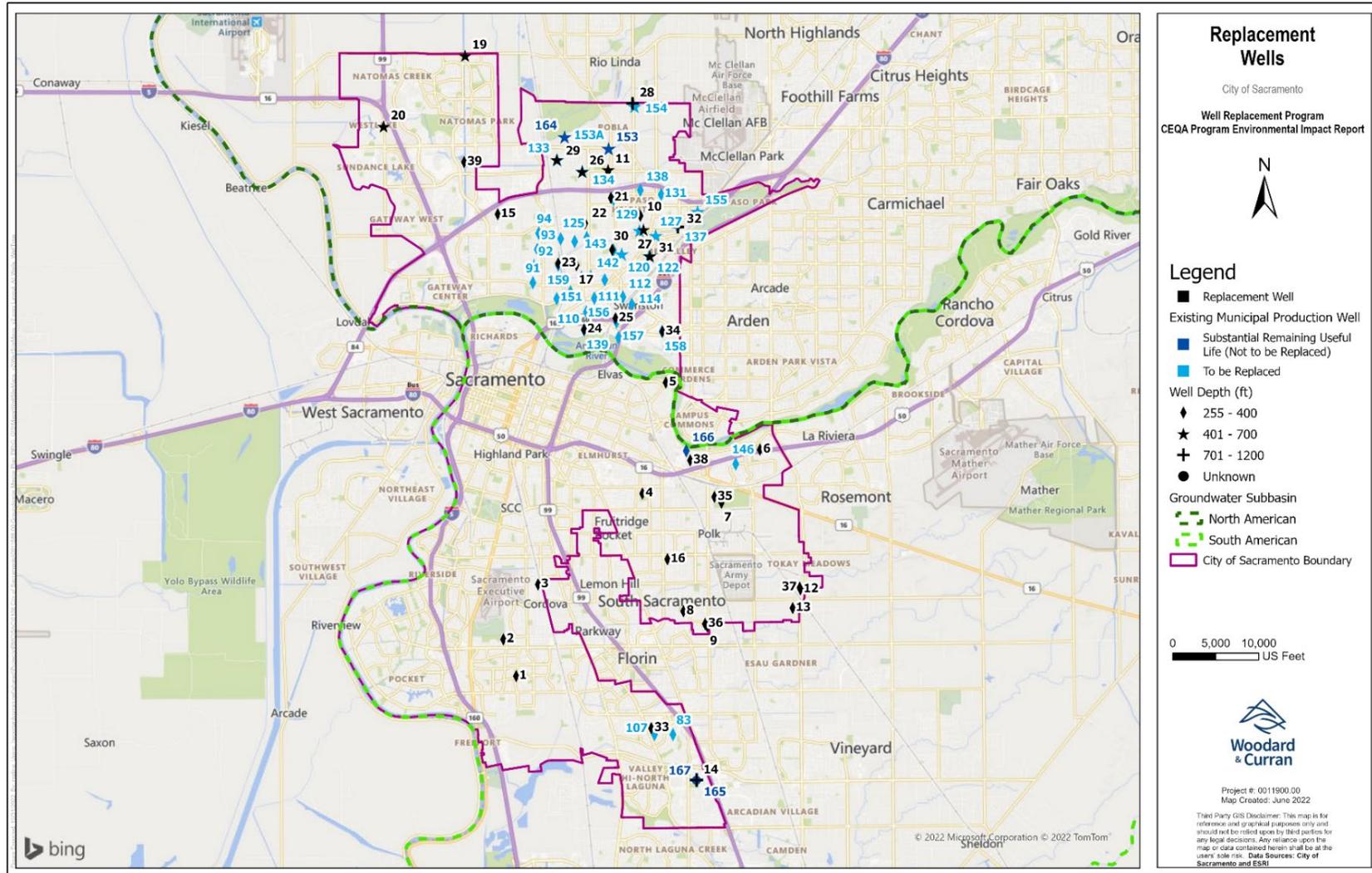
Impact Statement	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> <li>○ Protect the traditional use of the resource.</li> <li>○ Protect the confidentiality of the resource.</li> <li>• Establish permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.</li> <li>• Protect the resource.</li> </ul> <p><b>Mitigation Measure TCR-3:</b> Implement Procedures in the Event of the Inadvertent Discovery of Human Remains</p> <p>If an inadvertent discovery of human remains is made at any time during Project-related construction activities or Project planning, the following performance standards shall be met prior to implementing or continuing actions such as construction, which may result in damage to or destruction of human remains. In accordance with the California Health and Safety Code (HSC), if human remains are encountered during ground-disturbing activities, the City shall immediately halt potentially damaging excavation in the area of the remains and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (HSC Section 7050.5[b]).</p> <p>If the human remains are of historic age and are determined to be not of Native American origin, the City will follow the provisions of the HSC Section 7000 (et seq.) regarding the disinterment and removal of non-Native American human remains.</p> <p>If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (HSC Section 7050[c]). After the Coroner’s findings have been made, the archaeologist and the NAHC-designated Most Likely Descendant (MLD), in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains. The responsibilities of the City for acting upon notification of a discovery of Native American human remains are identified in California PRC Section 5097.9 et seq.</p>	

## CHAPTER 1. INTRODUCTION

The City of Sacramento (City), as California Environmental Quality Act (CEQA) lead agency for the Groundwater Master Plan Well Replacement Program (proposed Project or Project) has prepared this Draft Environmental Impact Report (Draft EIR).

This Draft EIR has been prepared to provide the public and responsible and trustee agencies reviewing the proposed Project a programmatic evaluation of potential effects on the local and regional environment associated with construction and operation of the proposed Project. The primary purpose of the Project is to replace up to 38 groundwater extraction wells with new wells within the City's water service area, which overlies the North American and South American Subbasins of the Sacramento Valley Groundwater Basin. The Project also includes connections to the City's existing water distribution and sanitary sewer systems and the destruction of up to 38 existing active and inactive wells that are at or near the end of their useful life. The proposed Well Replacement Program, which is an outgrowth of the City's 2017 Groundwater Master Plan, describes a plan for replacing current municipal wells to ensure reliability of the City's water supply. **Figure 1.1-1** shows the Project locations.

Figure 1.1-1: Project Location



## 1.1 BACKGROUND AND PURPOSE

### 1.1.1 BACKGROUND AND NEED FOR PROJECT

The City of Sacramento's 2017 Groundwater Master Plan was developed to be a strategic guide for future planning that describes the role of groundwater in the City's water supply portfolio and presents a plan for managing groundwater resource use in the context of long-term supply security and implementation of the Sustainable Groundwater Management Act (SGMA) of 2014. The Groundwater Master Plan identifies where, when, and how certain municipal production wells should be replaced given current economic, regulatory and water quality constraints as well as variations in hydrologic and climate conditions affecting reliability of the City's surface water supply. Based on the recommendations presented in the Groundwater Master Plan, specific potential groundwater projects were identified and prioritized for the City's consideration. One of the potential groundwater projects was a program to replace the City's existing wells that are found to be at or near the end of their useful life. Replacement planning was found to be necessary because many of the current well locations are too small to accommodate same-site well replacement. In addition, there are groundwater quality concerns that impact or threaten the ability to use many of the City's existing wells. As such, new locations are required for most replacement wells.

The City's primary water source is surface water from the Sacramento and American Rivers, where rights to extract river water are derived through five different water rights permits. The Sacramento and American Rivers will continue to play a key role in the City's water supply portfolio; however, the City has recognized that demographic, climate, and regulatory changes have resulted in a need to solidify the capacity and strategic use of groundwater to improve water supply reliability, diversify the City's supply portfolio, and to promote conjunctive use of the City's water supplies.

The Well Replacement Program involves the long-term (up to 15 years or potentially longer) replacement of up to 38 municipal groundwater wells. Replacement wells are located within the City's water service area, which overlies the North American and South American Subbasins of the Sacramento Valley Groundwater Basin. The proposed Project includes the construction, operation, and long-term maintenance of these replacement wells, including above-ground wellhead facilities, such as pumps and a chlorination/fluoridation system as well as below ground sanitary sewer and drinking water distribution system connections. Replacement wells would be constructed to produce approximately 1,250 gallons per minute of groundwater when in full operation. Wells in areas with groundwater quality concerns would require the construction and operation of necessary treatment systems. The Project also includes destruction of the 38 existing City wells, which would take place after the replacement well is fully operational.

### 1.1.2 PROJECT PURPOSE

The purpose of the proposed Well Replacement Program is to replace City municipal wells that are at or near the end of their useful life. Climate change is causing less precipitation in the Sacramento

area and less snowpack in the Sierra Nevada Mountains to supply water to the Sacramento area via the American River. Due to climate change, extremely dry years are expected to be more frequent and intense, and maintaining the City's capability to extract groundwater more reliably will allow the City to diversify its water supply portfolio. In addition, the frequency of wildfires within the upstream watershed is causing surface water treatment challenges. Climate and regulatory changes may impact future availability of surface water, and reliable groundwater supply is needed to ensure long-term sustainability of both supplies. For these reasons, the City is also supporting and participating in regional conjunctive use programs that store and manage groundwater to improve long-term water supply reliability in the region.

## 1.2 COMPLIANCE WITH CEQA

This document has been prepared to satisfy the requirements of CEQA, pursuant to CEQA Public Resources Code, Division 13, Environmental Protection and the CEQA Guidelines. The purpose of the Draft EIR is to publicly disclose the potential direct, indirect, and cumulative impacts of the proposed Project and its alternatives on the environment, including the no project alternative, and to identify feasible mitigation or alternatives capable of reducing or avoiding any of the Project's significant environmental impacts, for the benefit of decision makers, the general public, and responsible and trustee agencies.<sup>1</sup>

### 1.2.1 CEQA LEAD AGENCY

The City is the lead agency under CEQA for the Project.

## 1.3 INTENDED USES OF EIR

The City's intended use of this EIR is to programmatically evaluate the Project, make Findings regarding any identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding any significant unavoidable impacts. The information in the EIR can also be used in the future CEQA review process for development of individual well sites, as well for the acquisition of regulatory permits or approvals. **Table 1.3-1** summarizes the potential permits and/or approvals from the City and other agencies that may be required prior to construction of the proposed Project.

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<sup>1</sup> A responsible agency is an agency other than the lead agency that has a legal responsibility for also carrying out or approving a project; a responsible agency must actively participate in the lead agency's environmental process, review the lead agency's environmental document, and use that document when making a decision on the project. Trustee agencies have jurisdiction over certain resources held in trust for the people of California but do not have a legal authority over approving or carrying out a project.

**Table 1.3-1: Responsible and Trustee Agencies and Coordination**

Agency	Type of Permit or Approval
City of Sacramento (Lead Agency)	Encroachment Permit, Building Permit, Approval for Tree Removal
Sacramento Metropolitan Air Quality Management District	Permit to Construct, Permit to Operate for emergency generators
Sacramento County Environmental Management Department	Hazardous Materials Business Permit for storage of chemicals at well sites California Accidental Release Prevention Program registration (if required for storage of treatment chemicals at well sites)
Sacramento County Flood Control Agency	Encroachment Permit
Sacramento County Regional Sanitation District	Discharges of groundwater to sanitary sewer or combined sewer system during construction Discharges of backwash water to sanitary sewer during operation
California Division of Drinking Water of State Water Resources Control Board	Amended Water Supply Permit
State Water Resources Control Board	NPDES Construction General Permit for Storm Water Discharges associated with Construction Activities
Central Valley Regional Water Quality Control Board	NPDES Permit/ Waste Discharge Requirements (WDRs) for groundwater and/or test water discharges during construction (or coverage under General Permit)
California Department of Toxic Substances Control	USEPA ID for any hazardous waste hauled from well sites
United States Environmental Protection Agency	Risk Management Program registration for regulated substances exceeding reportable quantity threshold (20 Code of Federal Regulations Part 68 [68.130])

## 1.4 ORGANIZATION OF THE EIR

This Draft EIR is organized into the following Chapters:

**Executive Summary.** This chapter includes a summary of the Project, and the alternatives evaluated in this EIR. It includes a table that summarizes the impacts, mitigation measures, and levels of significance after mitigation measures are incorporated.

**Chapter 1: Introduction.** This chapter provides an introduction and overview describing the Project objectives, purpose and scope of the Draft EIR, intended uses of the EIR, including a list of responsible agencies and approvals, brief explanation of areas of controversy and issues to be resolved, and a summary of the CEQA review process.

**Chapter 2: Description of the Proposed Project.** This chapter presents a description of the proposed Project, including a description of proposed facilities and construction and operational considerations.

**Chapter 3: Environmental Setting, Impacts and Mitigation.** This chapter analyzes the environmental impacts of the proposed Project. Each topic includes a description of the environmental setting, regulatory setting, methodology, thresholds of significance, impacts (both project-specific and cumulative), mitigation measures, and significance after mitigation. Applicable references and acronyms and abbreviations are provided at the end of each environmental resource subsection.

**Chapter 4: Alternatives.** This chapter evaluates the impacts of alternatives as compared to the impacts of the proposed Project. The impacts of alternatives are summarized in order to allow identification of the environmentally superior alternative.

**Chapter 5: Other CEQA Considerations.** This chapter identifies significant and unavoidable impacts, the Project's irreversible and irretrievable commitment of resources, and growth-inducing impacts.

**Chapter 6: EIR Preparers.** This chapter lists the authors of the Draft EIR.

## 1.5 CEQA PROCESS AND REVIEW

### 1.5.1 NOTICE OF PREPARATION

In accordance with Section 15082 of the CEQA Guidelines, a Notice of Preparation (NOP) was submitted to the State Clearinghouse (State Clearinghouse #2022030709) and circulated to local and state agencies on March 25, 2022. The NOP was and remains available online on the City website. Notification of the NOP's availability was mailed to individuals living within 500 feet of each proposed Project site and emailed to nine local/state agencies.

### 1.5.2 PUBLIC SCOPING

#### 1.5.2.1 Scoping Meeting

A scoping meeting for the proposed Project was held on April 13, 2022 12:00 p.m. to 1:00 p.m. via Zoom link:

[https://cityofsacramento-org.zoom.us/webinar/register/WN\\_dOhBh888R6ahFqBmp2XWqQ](https://cityofsacramento-org.zoom.us/webinar/register/WN_dOhBh888R6ahFqBmp2XWqQ), and by phone at (669) 900-6833 (Webinar ID 942 7841 6721). The time, zoom link, and phone number to join the zoom via phone were included in the postcards announcing the availability of the NOP and a public notice of the meeting was posted on the City's website. The scoping meeting was held with an open forum where any attendees could ask questions via chat. For attendees who were calling in on the phone their comments needed to be received through email or mail. The scoping meeting also included a presentation, which described the Project with the use of graphic displays and maps along with information about the Project objectives, impacts to be evaluated in the Draft EIR, estimated EIR schedule, and general information about the CEQA process. Staff from

the City were in attendance to answer questions from the public. The zoom meeting was recorded and made available to the public on the City's website via YouTube.

### **1.5.2.2 Areas of Controversy and Issues to be Resolved**

Comments received in response to circulation of the NOP are included in Appendix A. One comment was received from the public at the scoping meeting via chat and four written comments were received from the following state and regional agencies:

- Native American Heritage Commission
- Central Valley Regional Water Quality Control Board
- California Department of Toxic Substances Control
- California Department of Fish and Wildlife – North Central Region

Additionally, written comments were received from two Native American tribes as part of the Assembly Bill (AB) 52 Tribal Consultation process. A summary of NOP comments and responses is included in the scoping summary in Appendix A. NOP comments included requests to evaluate the potential impacts to biological resources, groundwater subbasins, hazards and hazardous materials, noise, and water quality. These requests were evaluated in this Draft EIR and are summarized in **Table 1.5-1**.

**Table 1.5-1: Summary of Comment Requests**

Potential Impact/Assessment Requirement	Section of EIR Analysis is Found In
Insect Displacement	Section 3.3 Biological Resources
AB 52 and Cultural Resources Assessments	Section 3.4 Cultural Resources and Section 3.13 Tribal Cultural Resources
Water quality, discharge, and wastewater permits	Section 3.9 Hydrology and Water Quality
Potential aerially deposited lead (ADL)-contaminated soil	Section 3.8 Hazards and Hazardous Materials
Imported backfill soil sampling	Section 3.8 Hazards and Hazardous Materials
Assessment of rare and unique biological resources	Section 3.3 Biological Resources
Analysis of direct, indirect, and cumulative impacts to biological resources	Section 3.3 Biological Resources
Mitigation measures for Project impacts to biological resources	Section 3.3 Biological Resources
Consistency with the Sustainable Management Criteria of the North American and South American Subbasins Groundwater Sustainability Plans	Section 3.9 Hydrology and Water Quality
Impacts on Groundwater Dependent Ecosystems and Interconnected Surface Waters	Section 3.3 Biological Resources
Baseline extraction capacity and volumes versus project extraction capacity and volumes	Section 3.9 Hydrology and Water Quality

### *1.5.3 PUBLIC REVIEW OF THE EIR*

#### **1.5.3.1 Draft EIR**

This Draft EIR is being made available to local and state agencies and to interested organizations and individuals who may wish to review and provide comment. Notices of Availability have been distributed to agencies, organizations and individuals who have expressed interest in being included on the Project mailing list and to property owners within 500 feet of a proposed Project site. Publication of this Draft EIR begins a 45-day public review period, during which comments may be directed to the address or email below.

Scott Johnson, Senior Planner

City of Sacramento Community Development Department

300 Richards Blvd., Third Floor

Sacramento, CA 95811

E-mail: [srjohnson@cityofsacramento.org](mailto:srjohnson@cityofsacramento.org)

#### **1.5.3.2 Final EIR**

Comments received during the public review period will be addressed in a Response to Comments document, which together with the Draft EIR, will constitute the Final EIR. As the CEQA Lead Agency, the City will consider the Final EIR as complete under CEQA Guidelines Section 15090.

## CHAPTER 2. PROJECT DESCRIPTION

### 2.1 PROJECT OVERVIEW

The City of Sacramento Well Replacement Program involves the construction and operation of up to 38 groundwater extraction wells within the City's water service area, which overlies the North American and South American Subbasins of the Sacramento Valley Groundwater Basin, as well as distribution system improvements and the destruction of up to 38 existing active and inactive municipal wells that are at or near the end of their useful life. Please refer to *Section 2.4* for a detailed description of the Project components.

### 2.2 PROJECT OBJECTIVES, PROJECT NEED AND PROJECT PURPOSE

#### 2.2.1 PROJECT OBJECTIVES

The objectives of the Well Replacement Program are as follows:

- Develop replacement wells in accordance with Project siting and design criteria in the 2017 Groundwater Master Plan.
- Ensure the replacement well program meets the City's 2040 future projections for land use, water demand and supply by constructing wells that produce approximately 1,250 gallons per minute.
- Ensure the full functionality of the City's wells to meet existing and projected water demand.
- Solidify the City's capacity to extract groundwater more reliably, including during extremely dry years, to allow diversification of the City's water supply portfolio as climate and regulatory changes may impact future availability of surface water supplies.
- Effectively manage water supplies in a conjunctive manner to ensure long-term water supply security for the City and sustainability of both surface and groundwater supplies.

#### 2.2.2 BACKGROUND/NEED FOR PROJECT

The City of Sacramento's Groundwater Master Plan, completed in 2017, is a strategic guide for future planning that describes the role of groundwater in the City's water supply portfolio and presents a plan for managing groundwater resource use in the context of long-term water supply security and implementation of the Sustainable Groundwater Management Act (SGMA) of 2014. The 2017 Groundwater Master Plan provides recommendations for changes to existing groundwater operations, new groundwater-related infrastructure, and potential conjunctive use alternatives to allow the City to reliably meet its long-term water supply demands. Based on these

recommendations, specific potential groundwater projects were identified and prioritized for the City's consideration. Included in the Groundwater Master Plan is a program to replace the City's existing wells that are found to be at or near the end of their useful life. Replacement planning was found to be necessary because many of the current well locations are too small to accommodate same-site well replacement, and groundwater quality concerns impact or threaten the ability to utilize many of the City's existing wells. As such, new locations are required for most replacement wells.

The Groundwater Master Plan evaluates maximum and minimum groundwater use scenarios based on future water demand projections and identifies the number of replacement wells that would be needed under each scenario. Some wells would be replaced on site, others nearby, and others further away (either within or outside of the groundwater basin of the existing well). For the purposes of this EIR, the maximum groundwater use scenario is evaluated, which involves the replacement of up to 38 existing groundwater extraction wells (both City-owned existing active and inactive wells).

## 2.3 PURPOSE OF PROJECT

The proposed Well Replacement Program, which is an outgrowth of the City's Groundwater Master Plan, is intended to identify where, when, and how certain municipal production wells should be replaced, given current economic, regulatory and water quality constraints as well as variations in hydrologic and climate conditions affecting reliability of the City's surface water supply. The City's primary water source is surface water from the Sacramento and American Rivers, where rights to extract river water are derived through five different water rights permits. Beginning in 1957, the City entered into a water rights settlement contract with the U.S. Bureau of Reclamation that limits the maximum amount of water the City can divert off the two rivers. Per the settlement contract, the City is entitled to a maximum of 81,800 acre-feet from the Sacramento River per year, and an increasing maximum from the American River that ranges from 208,500 acre-feet in 2020 to 245,000 acre-feet in 2030 and beyond. The settlement also specifies maximum combined diversions from the two rivers.

The City is also a signatory of the 2000 Water Forum Agreement where local municipalities, leaders, and other interested parties in Sacramento, Placer, and El Dorado counties defined purveyor-specific limitations to groundwater pumping and surface water diversions as well as a regional understanding of management of dry year water supplies and water conservation, including establishing sustainable yield for the portion of the North American Subbasin within Sacramento County (locally referred to as the North Basin) and the South American Subbasin. The purpose of the Agreement is to achieve the two goals of ensuring water reliability through 2030 and preserving value of the Lower American River. Under the Agreement, the City agreed to limit its diversions from the American River to the E.A. Fairbairn Water Treatment Plant during extremely dry years and periods where river flows are below criteria set by Judge Richard Hodge in a 1990 decision based on the *Environmental Defense Fund v. East Bay Municipal Utilities District* litigation. The City can continue to divert American River entitlements at its Sacramento River facility during

these limiting periods, subject to the capacity restrictions of that facility. The sustainable yield of the North Basin has been established as 131,000 acre-feet per year (AFY), based on pumping in 1995 (Sacramento Water Forum, 2000). The sustainable yield of the South American Subbasin has been established as 273,000 AFY (Sacramento Water Forum, 2000). There are currently no existing regulations that directly limit the use or expansion of groundwater pumping in the South American Subbasin. With the passing of SGMA in 2014, high and medium priority groundwater basins, as designated by the California Department of Water Resources (DWR), are required to submit Groundwater Sustainability Plans (GSPs) to DWR by January 31, 2022. The North American Subbasin and South American Subbasin are both designated as high priority groundwater basins and GSPs have been adopted and submitted to DWR for review. The projects and actions described in the GSPs will be implemented with the goal of sustainable groundwater basin management by 2042.

While the Sacramento and American Rivers will continue to play a key role in the City's water supply portfolio, the City has recognized that demographic, climatic, and regulatory changes have resulted in a need to solidify the capacity and strategic use of groundwater to improve water supply reliability, diversify the City's supply portfolio, and to promote conjunctive use of the City's water supplies. The City overlies two groundwater subbasins of the Sacramento Valley Groundwater Basin: the North American Subbasin, located north of the American River, and the South American Subbasin, located south of the American River. Currently, the City has 22 active municipal wells permitted by State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) in the North American Subbasin and one active municipal well in the South American Subbasin permitted by DDW. Additionally, the City has four active municipal wells permitted by DDW that are currently offline in the North American Subbasin and three municipal wells pending permitting by DDW in the South American Subbasin. The City's combined 2035 retail urban demand and wholesale demand is projected to be 206,800 acre-feet, as reported in the City's 2015 Urban Water Management Plan (UWMP). As part of the 2017 Groundwater Master Plan, water demand projections (combined retail and wholesale) from the City's 2010 Water Supply Master Plan (2013) and 2015 UWMP (2016) were evaluated to develop a composite future demand projection for the years 2030 to 2050. These demands were compared with surface water supplies available from the Sacramento and American rivers per water rights and related agreements. The analysis determined that the City has sufficient surface water entitlements to supply projected demands. **Table 2.3-1** shows the future composite demand projections compared with the maximum allowed surface water diversions under average annual conditions.

**Table 2.3-1: Availability of Surface Water under Average Annual Conditions (Acre-Feet)**

Year	Retail Demand	Wholesale Demand	Total Demand	Sacramento River Maximum Diversion	American River Maximum Diversion	Total Surface Water Available	Unused Surface Water
2020	122,229	40,588	162,817	81,800	208,500	290,300	127,483
2025	129,548	47,717	177,265	81,800	228,000	309,800	132,535
2030	138,882	58,586	197,468	81,800	245,000	326,800	129,332
2035	148,213	58,586	206,799	81,800	245,000	326,800	120,001
2040	161,029	58,586	219,615	81,800	245,000	326,800	107,185
2045	174,841	58,586	233,427	81,800	245,000	326,800	93,373
2050	180,900	59,155	240,055	81,800	245,000	326,800	86,745

The City has historically relied on groundwater to meet 15 to 20 percent of its water supply demands, making groundwater an important component of the City's water supply portfolio. Overall, the City has sufficient surface water resources to meet projected demands, yet presently is limited by surface water treatment capacity. Maintaining the City's capability to extract groundwater more reliably, particularly during extremely dry years, anticipated to be more frequent and intense due to climate change, will allow the City to diversify its water supply portfolio as climate and regulatory changes may impact future availability of surface water supplies and to effectively manage their various water supplies in a conjunctive manner to ensure long-term sustainability of both supplies.

Groundwater quality concerns at some existing well locations have also impacted the City's ability to utilize groundwater. Currently, eight of the City's municipal wells (Wells 83, 92, 111, 123, 127, 144, 154 and 159) are offline (inactive) due to various water quality concerns. Wells 92 and 111 are not permitted by the SWRCB DDW. The operational status of the wells can change over time based on various conditions such as degradation of water quality, loss of functionality of well components, and other factors. Thus, the current operational status is subject to change.

## 2.4 ENVIRONMENTAL SETTING

The Project area is generally built-out. Surrounding land uses for existing and proposed replacement wells include single-family residential, multi-family residential, schools, commercial, office, public facilities (such as existing well sites, water storage facilities, and water treatment facilities), and open space/park. Of the City's 38 existing active and inactive municipal production wells identified for replacement, 35 wells are located in the North American Subbasin and three are located in the South American Subbasin. Of the proposed 38 replacement groundwater extraction wells, 20 wells are located in the North American Subbasin and 18 are located in the South American Subbasin.

## 2.5 EXISTING FACILITIES

**Table 2.5-1** describes the 38 existing active and inactive municipal production wells operated by the City that are to be replaced in addition to five wells that are not considered for replacement due to substantial remaining useful life (25 or more years of remaining useful life). The locations of the existing municipal production wells are shown in **Table 2.5-1**. In 2015, the City pumped and delivered 13,479 acre-feet of groundwater for retail use, plus an additional 227 acre-feet (AF) of groundwater for wholesale (City of Sacramento, 2016). For comparison purposes, the City diverted, treated, and delivered 70,467 AF of surface water from the Sacramento and American Rivers during the same time period. As of 2020, the City's oldest active well is 80 years old, and the average age of the City's wells is 57 years. All but five of the City's wells are currently at or near the end of their useful life which is generally between 30 and 60 years (an industry-accepted range dependent on well materials, water quality, maintenance, etc.), and will need to be replaced within the next approximately 5 to 15 years.

**Table 2.5-1: Existing Municipal Production Well Inventory**

Well Number	Location Description and Sensitive Receptors within 500 feet	Subbasin	Operational Status (as of Jan 2023)	Remaining Useful Life (Years, as of 2020)	Well Depth (feet)
Well 83	Residential area; Parking lot at 6550 Wyndham Dr; hospital; elementary school	South American	Inactive	7	240
Well 91	Residential; Near corner of W El Camino Ave and Northview Dr; Ninos Park	North American	Active	4	350
Well 92	Residential; Northview Dr between Bridgeford Dr and Los Lunas Way; elementary school	North American	Inactive	4	435
Well 93	Residential; Near corner of Tenaya Ave and Northview Dr	North American	Active	4	328
Well 94	Mixed residential and commercial; Parking lot behind 3307 Northgate Blvd	North American	Active	4	351
Well 107	Residential; Near corner of Maybelline Way and Grandstaff Dr; My Little Peanut Daycare	South American	Active	2	201
Well 109	Mixed use commercial and residential; Empty lot at corner of Colfax St and Stanford Ave; Redwood Park	North American	Inactive	7	390
Well 110	Mixed residential and commercial; Southgate Rd between Edgewater Road and Canterbury Rd	North American	Inactive	7	390
Well 111	Mixed residential and commercial; Calvados Ave Arden Way Alley between Oxford and Forrest St; Woodlake Park	North American	Inactive	0	303

Well Number	Location Description and Sensitive Receptors within 500 feet	Subbasin	Operational Status (as of Jan 2023)	Remaining Useful Life (Years, as of 2020)	Well Depth (feet)
Well 112	Mixed use residential and commercial; Parking lot at 2240 Evergreen St	North American	Active	2	360
Well 114	Commercial; Parking lot at 1200 Arden Way	North American	Active	4	366
Well 116	Mixed use residential and commercial; Parking lot at corner of Plaza Ave and Oakmont St	North American	Inactive	4	340
Well 120	Residential area; Branch Rd between Alamos Ave and Acacia Ave	North American	Active	4	440
Well 122	Mixed use residential and commercial; Adjacent to empty lot near corner of Juliese Ave and Del Paso Blvd	North American	Active	4	422
Well 123	Residential; Dead end of Fairbanks Ave and Western Ave	North American	Inactive	4	306
Well 124	Residential; Near corner of Danville Way and Cookingham Way; Fairbanks Elementary School; Strawberry Manor Park	North American	Active	9	308
Well 125	Residential; Parking lot behind 321 Fairbanks Ave; Gateway Park	North American	Inactive	7	300
Well 126	Residential; Near intersection of Rivera Dr and High Street behind Hagginwood Park	North American	Active	4	432
Well 127	Residential area; Lot behind 1665 Arcade Blvd	North American	Inactive	9	401
Well 129	Mixed use residential and commercial; Near corner of Harris Ave and Rio Linda Blvd	North American	Active	0	300
Well 131	Residential; Near corner of North Ave and Ivy Street	North American	Active	4	280
Well 133	Mixed use residential and commercial; Behind parking lot at 4596 Pell Dr	North American	Active	4	514
Well 134	Residential; Bell Ave between Norwood Ave and Austin St	North American	Active	0	513
Well 137	Residential area; Empty lot at corner of Los Robles Blvd and Del Paso Blvd	North American	Active	9	245
Well 138	Residential; Fell St between Stephanie Ave and Rene Ave; Keema School for Independent Study	North American	Active	4	375
Well 139	Commercial area; Parking lot at 1770 Lathrop Way; Sacramento Behavioral Healthcare Hospital	North American	Active	12	255

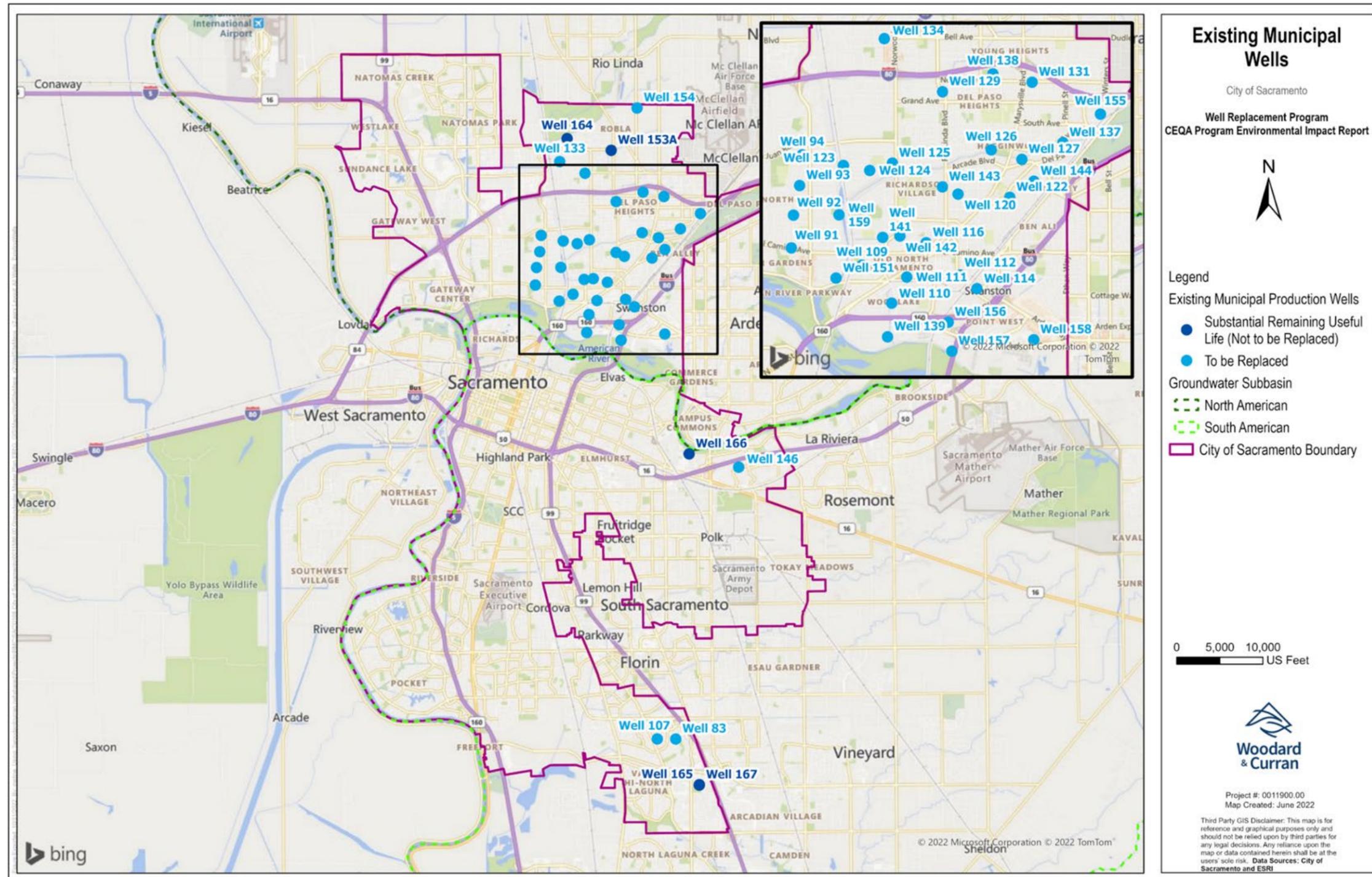
Well Number	Location Description and Sensitive Receptors within 500 feet	Subbasin	Operational Status (as of Jan 2023)	Remaining Useful Life (Years, as of 2020)	Well Depth (feet)
Well 141	Residential area; Empty lot on Grove St north of the Norwood Bypass and south of Lampasas Ave	North American	Inactive	7	315
Well 142	Residential; Behind residence at Norwood Ave and Norwood Bypass	North American	Inactive	0	384
Well 143	Mixed use residential and commercial; Empty lot on Acacia Ave between Altos Ave and Rio Linda Blvd; Richardson Village Park	North American	Active	14	330
Well 144	Mixed use residential and commercial; Eldridge Ave between Judah St and Academy Way	North American	Inactive	7	396
Well 146	Residential; Jefferson School Park; California Montessori Project	South American	Inactive	7	307
Well 151	Residential; Empty lot at dead end of Jefferson Ave	North American	Inactive	7	346
Well 153A	Mixed use residential and commercial; Main Ave between Rio Linda Blvd and Taylor Street	North American	Active	25	628
Well 154	Residential; Dry Creek Rd between Ascot Ave and Neal Rd	North American	Inactive	0	414
Well 155	Mixed use residential and commercial; Corner of Roanoke Ave and Cameron Rd	North American	Active	4	427
Well 156	Commercial; Near Highway 160 on ramp at Tribute Rd	North American	Active	4	380
Well 157	Commercial area; Tribute Rd adjacent to westbound Business 80 near American River Bike Trail	North American	Inactive	7	377
Well 158	Commercial; Parking lot of Sacramento Fire Department Station 19	North American	Active	9	318
Well 159	Residential; Dead end of Bowman Rd near bike trail; Gardenland Park	North American	Inactive	0	375
Well 164	Mixed use residential and commercial; Parking lot at 5091 Kelton Way	North American	Active	30	635
Well 165 (Shasta 1)	Residential; Shasta Reservoir	South American	Permit Pending	60	1203
Well 166 (E.A. Fairbairn)	Commercial; E.A. Fairbairn Water Treatment Plant	South American	Permit Pending	60	320

Well Number	Location Description and Sensitive Receptors within 500 feet	Subbasin	Operational Status (as of Jan 2023)	Remaining Useful Life (Years, as of 2020)	Well Depth (feet)
Well 167 (Shasta 2) <sup>2</sup>	Residential; Shasta Reservoir	South American	Permit Pending	60	982

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<sup>2</sup> This well is the same as replacement Well 14 identified in **Table 2.6-1**. This well was completed after the City's 2017 Groundwater Master Plan was finalized.

Figure 2.5-1: Existing Municipal Production Wells



Existing well facilities are largely located on City-owned parcels such as parks, secured lots, or undeveloped lots. Groundwater quality is generally good throughout most of the North American and South American Subbasins within the City's service area. Within both Subbasins, elevated arsenic and hexavalent chromium levels are present in some areas (predominantly on the west side) in addition to PCE above the Primary MCL. Iron and manganese are also present in some locations at concentrations over the Secondary MCL. Several contaminant plumes are known throughout the Subbasins and are related to past land uses such as McClellan Air Force Base and Sacramento Railyard in the North American Subbasin and Mather Airforce Base and Aerojet in the South American Subbasin. In addition, other potential point sources include leaking underground storage tanks, improperly stored pesticides, and leaking dry cleaning solvents. However, water quality at existing production wells operated by the City is generally good and wells largely only require disinfection, including blending, chlorination, as well as fluoridation.

## 2.6 PROPOSED PROJECT

As previously stated, the City's Well Replacement Program includes the replacement of up to 38 municipal wells within the City's service area, as well as distribution system improvements to accommodate new well locations. Of the 38 proposed replacement groundwater extraction well sites, 20 sites are located within the North American Subbasin and 18 sites are located within the South American Subbasin. This represents 11 new wells in the South American Subbasin total, compared to existing conditions in which there are six active and inactive wells. **Table 2.6-1** describes the attributes of the 38 proposed replacement wells and **Figure 2.6-1** shows the locations of the 38 replacement wells relative to the existing municipal production wells. All wells except two would produce approximately 1,250 gallons per minute (gpm) of groundwater. The two exceptions are Well 23 and Well 38. These replacement wells would produce the same capacity as existing wells with Well 23 constructed in the North American Subbasin and capable of producing approximately 750 gpm, and Well 38 constructed in the South American Subbasin and capable of producing approximately 3,000 gpm. Preliminary siting of well facilities for all 38 proposed groundwater extraction well sites can be found in Appendix B. The useful life for each replacement well would be between 30 and 60 years, depending on construction materials, water quality, maintenance, and other related parameters.

All of the proposed wells both in the North and South American Subbasins have depths substantially deeper than the Minimum Thresholds established at the GSP well locations. The proposed wells in the North American Subbasin have depths ranging from 255 feet to 1,000 feet below ground surface (bgs). These depths are much deeper than the Minimum Thresholds at the GSP well locations in the Project vicinity which range from 31 to 85 feet bgs. Similarly, the proposed City of Sacramento wells in the South American Subbasin have depths ranging from 314 to 1,200 feet bgs. These depths are much deeper than the Minimum Thresholds at the GSP well locations in the Project vicinity which range from 44 to 55 feet bgs. Design of each well would be based on site-specific hydro-stratigraphy, soil types, and location relative to interconnected surface water (ISW) and groundwater dependent ecosystems (GDEs).

**Table 2.6-1. Replacement Well Attributes**

Well Number <sup>3</sup>	Alternative Well Number	Location Description and Sensitive Receptors within 500 feet	Subbasin	Well Capacity (gallons per minute [gpm])	Well Depth (feet)
Well 1	Well 112B	Residential; Mark Hopkins Elementary School	South American	1,250	350
Well 2	Well 138B	Residential; William G Chorley Park	South American	1,250	350
Well 3	Well 114B	Mixed use residential and commercial; Collis P Huntington Elementary School	South American	1,250	350
Well 4	Well 94B	Residential; North end of Tahoe Park near baseball diamonds; Collis P Huntington Elementary School	South American	1,250	350
Well 5	Well 146B	Residential; Glenn Hall Park near Glenn Hall Pool; Tahoe Elementary School	South American	1,250	350
Well 6	Well 151B	Residential; Glenbrook Park	South American	1,250	350
Well 7	Well 155B	Commercial; Granite Regional Park	South American	1,250	397
Well 8	Well 127B	Residential; Camellia Park	South American	1,250	350
Well 9	Well 93B	Mixed use residential and commercial; Danny Nunn Park; Camellia Elementary School	South American	1,250	350
Well 10	Well 123B	Residential; Grant Union High School	North American	1,250	370
Well 11	Well 131B	Residential; Robla Reservoir; Grant Union High School	North American	1,250	500
Well 12	Well 120B	Commercial; near 43rd Avenue and 88 <sup>th</sup> Street	South American	1,250	350
Well 13	Well 144B	Commercial; end of Asher Lane off of Elder Creek Road	South American	1,250	350
Well 14 <sup>4</sup>	Well 167	Mixed use residential and commercial; 2 <sup>nd</sup> well at Shasta Reservoir	South American	1,250	1,200

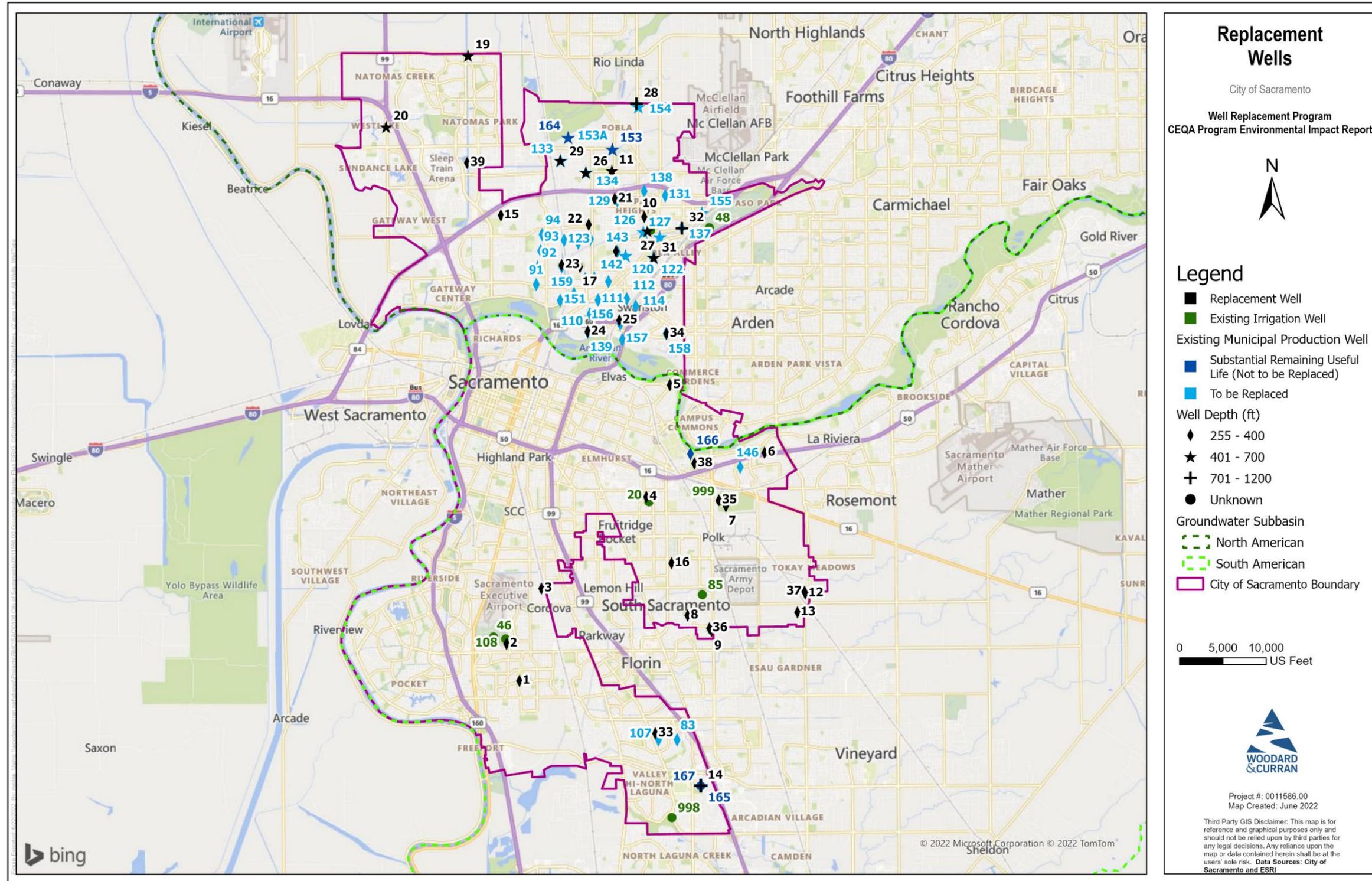
<sup>3</sup>Well numbering corresponds to well numbering in the City's Groundwater Master Plan (2017). Well 18 does not exist due to a typo in Groundwater Master Plan. The Alternative Well Number corresponds to the City's numbering of the existing wells to be replaced.

<sup>4</sup> The second well at the Shasta Reservoir site (Well 167) has been installed, but is not yet operational, and is thus being addressed in this document only for operational impacts.

Well Number <sup>3</sup>	Alternative Well Number	Location Description and Sensitive Receptors within 500 feet	Subbasin	Well Capacity (gallons per minute [gpm])	Well Depth (feet)
Well 15	Well 92B	Residential; Fong Ranch Road near Discovery High School	North American	1,250	400
Well 16	Well 91B	Mixed use residential and commercial; 66th Street Fire Station; Discovery High School	South American	1,250	350
Well 17	Well 111B	Residential; Johnston Park	North American	1,250	400
Well 19	Well 109B	Residential; Elkhorn Tank Site; Johnston Park	North American	1,250	600
Well 20	Well 125B	Residential; El Centro Tank Site	North American	1,250	600
Well 21	Well 129B	Mixed use residential and commercial; near intersection of Rio Linda Blvd and Altos Ave	North American	1,250	300
Well 22	Well 124B	Mixed use residential and commercial; Robertson Park	North American	1,250	308
Well 23	Well 159B	Residential; Gardenland Park	North American	750	375
Well 24	Well 139B	Commercial; near intersection of Commerce Circle and Lathrop Way	North American	1,250	255
Well 25	Well 156B	Commercial; Fee Drive near Tribute Road; Sacramento Behavioral Healthcare Hospital	North American	1,250	380
Well 26	Well 134B	Residential; near intersection of Bell Ave and Baumgart Way	North American	1,250	513
Well 27	Well 126B	Residential; Hagginwood Park	North American	1,250	432
Well 28	Well 154B	Mixed use residential and commercial; near intersection of Dry Creek Road and Ascot Drive	North American	1,250	1,000
Well 29	Well 133B	Mixed use residential and commercial; Located behind 4590 Pell Drive	North American	1,250	514
Well 30	Well 143B	Mixed use residential and commercial; near intersection of Acacia Ave and Rio Linda Blvd	North American	1,250	330
Well 31	Well 122B	Mixed use residential and commercial; near intersection of Del Paso Blvd and Juliese Ave	North American	1,250	422
Well 32	Well 137B	Residential; near intersection of Del Paso Blvd and Los Robles Blvd	North American	1,250	1,000
Well 33	Well 107B	Residential; Rio Cazadero High School	South American	1,250	350

Well Number <sup>3</sup>	Alternative Well Number	Location Description and Sensitive Receptors within 500 feet	Subbasin	Well Capacity (gallons per minute [gpm])	Well Depth (feet)
Well 34	Well 158B	Commercial; Sacramento Fire Department Station 19; Rio Cazadero High School	North American	1,250	318
Well 35	Well 110B	Commercial; 2 <sup>nd</sup> well at Granite Regional Park	South American	1,250	350
Well 36	Well 141B	Mixed use residential and commercial; 2 <sup>nd</sup> well at Danny Nunn Park	South American	1,250	350
Well 37	Well 157B	Commercial; 2 <sup>nd</sup> well near 43rd Avenue and 88 <sup>th</sup> Street	South American	1,250	350
Well 38	Well 142B	Commercial; 2 <sup>nd</sup> well at E.A. Fairbairn Water Treatment Plant	South American	3,000	314
Well 39	Well 116B	Mixed use commercial and residential; Capitol Gateway Reservoir well	North American	1,250	400

Figure 2.6-1. Replacement Well Locations



## 2.6.1 PROJECT SITING CRITERIA

The Groundwater Master Plan selected the 38 replacement well sites based on the following selection criteria. These criteria would also be used if any of the 38 replacement well sites were to be relocated due to infeasibility or other considerations.

1. Existing wells were replaced on site, when possible.
2. Replacement wells were sited at locations adjacent to existing well sites, when possible.
3. Replacement wells were sited in the same groundwater basin but at a different location, when possible.
4. When the above criteria could not be met, the replacement well locations were determined based on preferred sites and sites large enough to contain two wells without significant pumping interference.
5. All replacement wells were to be located and constructed to avoid the need for treatment for manganese, iron, arsenic, methane, hydrogen sulfide, and other constituents, and only require disinfection (chlorination) and fluoridation.

As described in the Groundwater Master Plan, once well sites were selected, the following criteria were applied as the minimum requirements for locating the wells within the site and the ensuing site design. These requirements would also apply if relocation of a well site should be needed.

- Located close to existing roads and buildings to allow easier and safer site ingress and egress for construction and maintenance, utility access, while creating minimal disturbance of existing park open space and facilities.
- Adequate space for a control building and/or fenced enclosure to secure wellhead facilities.
- Adequate space to allow for chlorination and fluoridation systems consisting of, at a minimum, a pressure tank and backwash tank.
- No wellhead treatment for constituents. Only disinfection (chlorination) and fluoridation are anticipated. In the event that treatment for manganese, iron, arsenic, methane, hydrogen sulfide or other constituents, is required, such treatment equipment would be sited outside of the control building within the current wellhead footprint and concealed in visually sensitive areas using concrete masonry unit (CMU) block wall, security and/or ornamental fencing, and landscaping, as appropriate.
- New municipal well sites require a 50-foot well site control zone from any sewer, including sanitary, industrial, or storm sewer, main or lateral (per California Well Standards); locations could be adjusted in final design to maintain adequate setback from these or other facilities such as recycled water lines.

- New municipal wells sited near surface water bodies will be located and screened to avoid production of groundwater under direct influence of surface water.
- Well sites to be coordinated with developers of master planned communities, if applicable, to set aside dedicated parcels that are in favorable hydrogeologic locations (acceptable water quality and capacity) for groundwater wells, as well as within proximity (less than 200 feet) from required infrastructure (i.e., industrial level of electrical power, water distribution mains, storm drain, and sewer mains).
- New municipal well sites are recommended to be approximately one acre in size (approximately 200 feet by 200 feet) to accommodate possible future water quality treatment, emergency generators, and replacement wells.
- The minimum lot size for a new well site must be 120 feet by 120 feet and typically in a square shape.
- The layout of above-grade pumping equipment (piping and valving) needs to allow sufficient access for future maintenance and rehabilitation of the well.
- Where a well site is within a City park, a larger control building and/or fenced enclosure would be required to securely contain the well, above-grade piping, chemical and electrical rooms, and associated appurtenances.
- Control buildings that house the well and pump would need adequate access for well maintenance and rehabilitation, including access (i.e., detachable skylight or roof or integrated crane) to remove pumping equipment for maintenance.
- Conceptual well site layout should include sufficient open area for chemical delivery, siting of the production well, control building and/or fenced enclosure, site access, emergency generator, future water quality treatment, and replacement well.
- Aerial footprint of the well site and construction staging site and pathway clear of elevated power supplies/lines for crane operations.
- Safe ingress and egress from the well site for regular well maintenance vehicles and large crane trucks for periodic well maintenance, located along streets or access roads with low speed limits and good sightlines.
- Approximate construction staging area of 90 feet by 60 feet adjacent to the well site with room to park a minimum of two large vehicles (three-quarter ton).

## 2.6.2 CONSTRUCTION ACTIVITIES AND SCHEDULE

Construction of wells under the Project would take place in four stages: exploratory drilling, well drilling and construction, well equipping, and well destruction. Where groundwater quality is known, all construction activities would take place over the course of six to eight months per well,

including exploratory drilling, well drilling and construction, and well equipping. Where groundwater quality is not known, all construction activity (including exploratory drilling, well drilling and construction, and well equipping) would be spread out over the course of approximately nine to 12 months per well to allow for additional aquifer testing. It is assumed that the City would replace the 38 wells over a period of approximately 15 years, with a range of one to four wells constructed in any given year.

### **2.6.2.1 Exploratory Drilling**

Prior to well construction, new well sites would be evaluated by a State of California Certified Hydrogeologist with an exploratory drilling program to characterize the site- and depth-specific geologic and water quality considerations prior to designing a new municipal production well. The exploratory drilling program would provide data necessary to support the design for each municipal well. Where depth-specific water quality is already known and acceptable, such as where replacing a decommissioned well on the same parcel or in close proximity (less than 500 feet), the exploratory drilling program would only include a test hole. At locations identified for new wells where the previous data are not available (i.e., no existing wells) and groundwater quality is unknown, an exploratory drilling program would include depth-specific monitoring well(s) to access the major aquifers underlying the site. Actual well designs and depths would be based on site-specific hydro-stratigraphy, soil types, and location relative to ISW and GDEs.

For sites where depth-specific water quality is already known and acceptable, construction of a test hole would be conducted over the course of one week per site. For sites where previous data are not available and water quality is unknown, depth-specific monitoring wells would be constructed and tested over the course of one month per site with monitoring activities conducted periodically over the course of nine to 12 months.

During the exploratory drilling phase, if any well is identified as infeasible, a new well location would be identified following the siting criteria listed in *Section 2.5.1 Project Siting Criteria*.

### **2.6.2.2 Well Drilling**

Well drilling and design would be completed in accordance with California Well Standards Bulletin 74-81 and Bulletin 74-90 as well as Sacramento County requirements. Well drilling is assumed to require two to five weeks of continuous drilling operation (depending on well depth), where drilling operations for 24 hours/day are needed to prevent borehole collapse. As described above in *Section 2.6.2 Construction Activities and Schedule* above, the well drilling phase schedule depends on the depth of the well and whether groundwater quality in the area of the well site is known.

### **2.6.2.3 Well Equipping**

Well equipping includes the construction of above-grade facilities as well as below grade pipelines to connect the replacement well to the potable water distribution system. The following facilities with associated appurtenances would be installed as part of the well equipping phase and would

be designed in accordance with applicable City plans, polices and ordinances related to site design and building:

### ABOVE-GRADE FACILITIES

- Control building with chemical and electrical rooms, including HVAC and ventilation, with the following facilities contained within the control building:
  - Hypochlorite feed equipment
  - Fluoride equipment and feed lines
  - Well pad (except at vacant lots and existing utility facilities where wellhead will be located outside of the control building)
  - Well pump with discharge pipe and motor and sound attenuation devices, as necessary (except at vacant lots and existing utility facilities where wellhead will be located outside of the control building)
  - Pressure filter, as necessary
  - Backwash tank, as necessary
  - Flow meter (except at vacant lots and existing utility facilities where wellhead will be located outside of the control building)
  - Electrical appurtenances including service entrance switchboard, motor control cabinet (MCC), and variable frequency drive (VFD/SS), conduit, wire, lighting, receptacles, and grounding instrumentation
  - Supervisory control and data acquisition (SCADA) communications antenna, up to 50 feet above ground surface
  - Automated meter reading telemetry antenna, up to 50 feet above ground surface
- Additional treatment systems for manganese, iron, arsenic, methane, hydrogen sulfide, and other constituents, as necessary
- Standby generator (as needed)
- Bollards, where appropriate
- Signal pole
- Security fencing, where appropriate
- Site camera monitoring systems, where appropriate
- Concrete masonry unit (CMU) block wall with razor wire or high security ornamental topping, where appropriate

- Ornamental fencing with automatic rolling gate and pedestrian gate, where appropriate
- Concrete paving
- Landscaping, irrigation, and cover material for restoration of existing landscape to preconstruction conditions or to screen treatment systems in visually sensitive areas. Landscaping will consist of drought tolerant and native vegetation and include drip irrigation, where appropriate, to promote water efficiency.

#### BELOW-GRADE FACILITIES

- Drain system piping
- Sanitary inlets
- Air gap structure
- Electrical service
- Polyvinyl chloride (PVC) pipe

The well site layout and security features would vary based on the surrounding land use of the well location. For wells located at schools and parks, a control building (with associated appurtenances) with a detachable roof would house the well pump to secure the pump and reduce noise as the well is operating while providing appropriate access for maintenance (**Figure 2.6-2**). Block wall (CMU) buildings would be designed and constructed around well facilities, where needed for noise control and to reduce visual interest, in addition to ornamental fencing and security fencing around the control building and well pump (**Figure 2.6-3**). For wells located at existing utility facilities, such as above-ground reservoirs, the well facilities would be installed within existing fenced or walled areas with bollards installed around the pump and controls to prevent potential damage by on-site utility vehicles.

In the event treatment systems for constituent removal are required, additional equipment would need to be sited (**Figure 2.6-4**, circled in red) within the current well footprint, and in some locations would require additional security with CMU block walls such as high security topping, and landscaping in visually sensitive areas. The permanent footprint for large treatment systems could be in the range of 30 feet by 60 feet (or potentially larger or smaller), with the actual footprint varying depending on the type of treatment required, treatment technology, and flow rates at individual well sites. Some of the proposed well replacement sites, including well sites 16, 23, 25, 27 and 36, may have site constraints that would need to be considered in engineering design and constructing a larger treatment system at the site. These constraints include available space (e.g., narrow lot or small lot with limited access), surrounding trees that limit access, visual impacts to surrounding properties, and impingement on existing site uses (e.g., park or public school). Exploratory drilling, as described in *Section 2.5.2 Construction Activities and Schedule* would identify if additional treatment systems would be needed at a given well site. If additional treatment is

needed, the site design would be evaluated to determine any design constraints (such as space, public perception, visual issues, etc.). If site design issues are identified, a new site may be required and site selection would follow the siting criteria listed in *Section 2.5.1 Project Siting Criteria*.

Well sites that require treatment systems for constituent removal would likely have facilities similar to those constructed at the City's Shasta Reservoir well site (Well 167), although not yet in service. These facilities include an aeration tank, cell horizontal filter, backwash tank, and a 4 MG water storage tank. For manganese treatment, the City installed three dual media manganese filters with provisions for a future fourth filter. Sodium hypochlorite is injected into the treatment system prior to filtration at the well and at the outlet of the methane scrubber raw booster pump station. Chlorine is used to oxidize the manganese and make it insoluble so that it is possible to be removed by the filter. The filtration consists of three coated steel compartmentalized pressure vessel type media filters. The primary function of the filters is to lower the naturally occurring manganese concentration in the water to within the acceptable maximum contaminant level (MCL) of 50 parts per billion (ppb), but preferably as low as reasonably possible to reduce manganese build-up within the distribution system. The filter system is designed to backwash into a dedicated steel tank that can store up to 100,000 gallons of water. Backwash water will be stored in the tank and disposed of through a sewer connection or pumped and hauled away to be disposed of offsite every couple of months, although whenever possible, the City will recycle some of the backwash water through the treatment process to reduce water loss. **Figure 2.6-5** shows a site plan for the Shasta Well Site (Well 167) and encompasses approximately 1.8 acres.

For constituents other than manganese, an appropriate water treatment system would be designed and installed. The City has the following available treatment technologies:

- **Advanced Oxidation Process (ultra-violet light with Hydrogen Peroxide):** This process is used for treatment of organic contaminants VOCs and 1,4-dioxane where very highly reactive hydroxyl (e.g., hydrogen peroxide) reacts with the organic compounds to remove the contaminants, followed by ultra-violet light for further treatment. The process is not effective at disinfection but is highly effective at controlling contaminants.
- **Chloramination:** This process is used for treatment of organic DBPs Trihalomethanes and Haloacetic Acids by adding ammonia to water containing free chlorine. This process is very effective at controlling these contaminants by avoiding their formation.
- **Granular Activated Carbon:** This process uses material made from coal or other organic matter such as peat, wood, or coconut shells to act as a filter where the water passes through to remove the organic components. This process helps the removal of organic DBPs by removing their precursor, TOC of trihalomethanes and haloacetic acids, organic contaminants of TCE and PCE, and PFAS of PFOA and PFOS. A high surface area must be used for this filtration process.

- **Granular Ferric Oxide Media:** This treatment process uses a granular media composed of ferric oxide mixtures which is placed in a contactor, like a filter, where the water passes through to remove inorganic components such as arsenic.
- **Ion Exchange - Single-Pass and Regenerable Strong Base Anion Resin Treatment:** This treatment process uses a resin that contains a large number of weakly-held ions such as sodium and chloride. The strong base anion resin will have two types of negatively charged resins (such as chloride) and when water comes in contact with the resin, strongly held ions in the water are removed and replaced with the weakly held ions in the resin. This process is used for treatment of radionuclides, inorganics (nitrate, nitrite, perchlorate, PFAS), metals (arsenic, barium, chromium, copper, selenium), and inorganic DBPs (bromate, chlorate).
- **Packed Tower Aeration:** This process sprays water into the top of an enclosed tower packed with plastic material, and depending on the water quality removal intended to be conducted with the aeration system, treatment of the released air may be required as part of the process. This process is used to remove radon, trihalomethanes, and organics such as PCE, TCE, and other VOCs.
- **Reduction, Coagulation, Filtration:** This treatment process adds ferrous sulfate to the water to reduce constituents from their oxidized form. This process is used to remove Cr(VI) and total chromium.
- **Reverse Osmosis:** This treatment process uses membrane liquid-separation with a pore size of approximately 0.0001 micron. This process is used to remove radionuclides, inorganics, metals, bromate, and organic DBPs.

The specific treatment technology would be determined by the constituent of concern and the size and visual impacts of the well site location. However, in general the on-site structural features associated with these treatment systems would include above-ground filter systems (that may be contained within a control building), storage tanks for water and backwash water, and aeration tanks. Any treatment system chemicals that would be stored on site would be placed in the control building and would meet all applicable transportation, use and storage requirements of state and local agencies. Some locations may have lot size constraints or result in potential visual impacts to the public that would need to be considered.

**Figure 2.6-2. Example Well Site at School or Park**



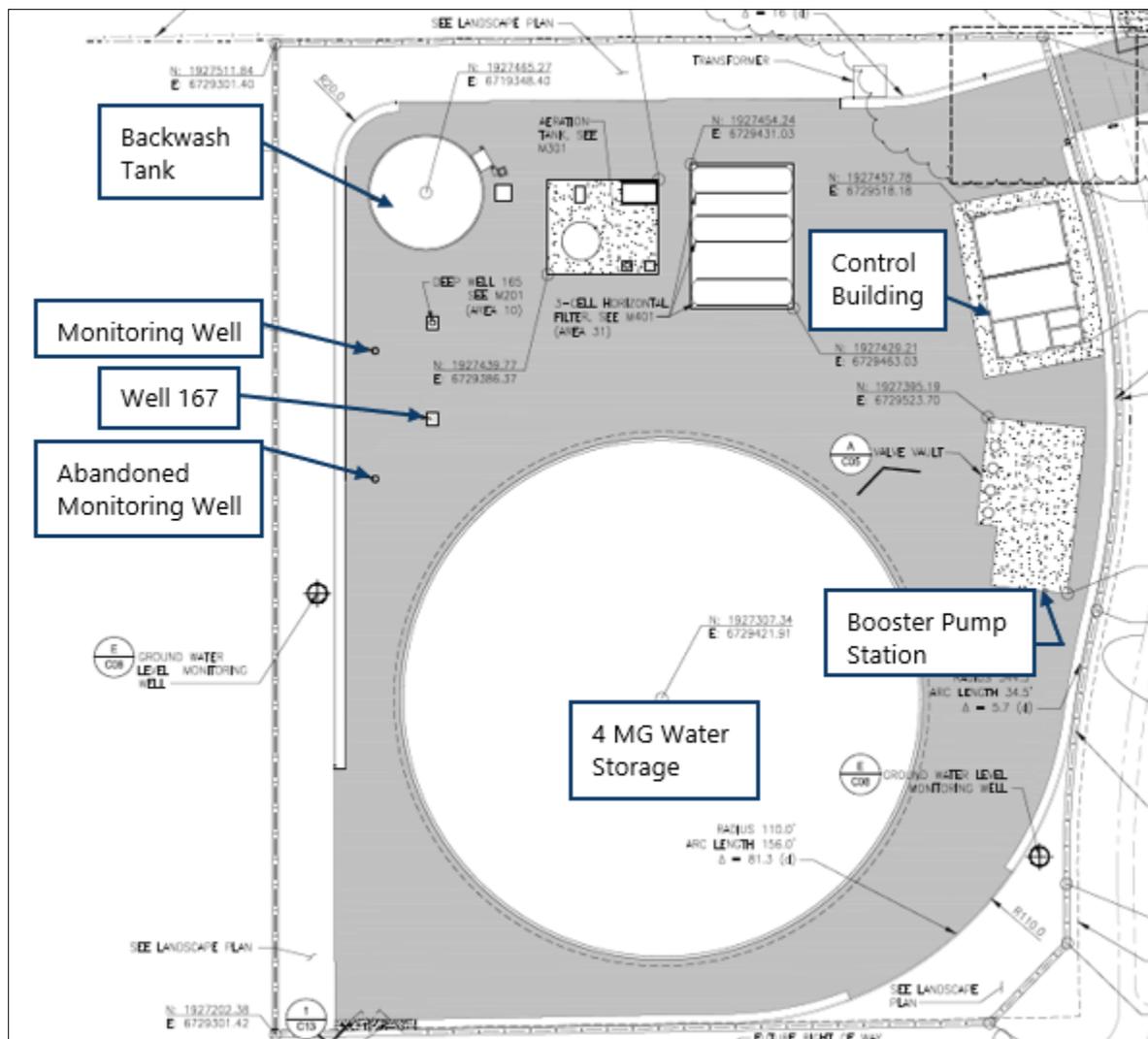
**Figure 2.6-3. Example Well Site at Vacant Property**



Figure 2.6-4. Example Well Site with Treatment System for Constituents



Figure 2.6-5: Shasta Reservoir (Well 167) Site Design and Layout



On-site chlorine systems (chlorine gas, liquid sodium hypochlorite<sup>1</sup>, or on-site generation of sodium hypochlorite from sodium salts) and fluoride systems (hydrofluorosilicic acid [liquid fluoride] or powdered/granular fluoride) would be used at each well site to minimize the use and delivery of hazardous materials to once per month. All chemicals would be stored within the control building at each well site. Proper control and mitigation measures would be put in place during chemical deliveries following all local, state, and federal procedures to ensure surrounding communities are not exposed. Proposed well sites were selected to ensure sufficient open space to avoid impacts to the surrounding community.

Potable water distribution system improvements could include either 12-inch diameter ductile pipeline or 18-inch diameter ductile, welded steel, or reinforced concrete pipeline per City standards. Sewer system improvements would include PVC pipelines potentially ranging in diameter from 2- to 4-inches to allow discharge of raw groundwater prior to bringing the well online or out of standby mode. Uniform excavation, backfilling, and installation requirements are assumed for all required pipeline connections and improvements. A flow control valve would also be required on all lines to prevent backflow. Construction of pipeline that would be required to connect the replacement wells to the City's water distribution and sewer systems would occur within the existing right-of-way (i.e., along public roads, existing easements) with proper notice and traffic mitigation measures in place prior to and during construction.

The width of pipeline construction zones generally would be 20 feet. In general, the pipeline trench would be excavated to a depth of up to six feet and would be approximately 10 feet wide. After trenching, the pipeline would be placed in the trench. The trench would then be backfilled with native soil excavated from the trench, to the extent feasible and appropriate, and then compacted to meet applicable compaction requirements. However, depending on the soil conditions of the excavated materials, imported backfill could be necessary for compatibility and stability. Once the trenches are backfilled, disturbed areas would be graded to restore to approximate pre-construction conditions and repaved or revegetated with native plant seed mix or turf as appropriate for the site. During installation, open trenches within roadways would be covered at the end of each workday with steel plates or trench backfilling to accommodate vehicle access during non-work hours. Temporary lane or road closures may be required during construction along some of the pipeline routes.

Construction of well equipping facilities would begin approximately six weeks after the beginning of well drilling. Additional site clearing and grubbing beyond that conducted for well drilling may be required. Site excavation and grading would be minor. Excavation would extend to a maximum depth of five feet for control building foundations and utilities underneath the building. After the foundation and utilities connections are constructed, the remainder of the building would be constructed, and the well pump and other equipment installed. Following the completion of all

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<sup>1</sup> Sodium hypochlorite is the active ingredient in household bleach. Typical household bleach contains 5.25 % sodium hypochlorite, while "extra strength" bleach may contain 6% to 7% sodium hypochlorite. Liquid sodium hypochlorite for water treatment facilities typically contains about 12% sodium hypochlorite.

construction activities, unpaved areas disturbed due to equipment staging or use will be restored to pre-construction conditions.

The well equipping phase consists of developing the site for the well, as described above, and is included in the six to eight month schedule for sites where groundwater quality is known and a nine to 12-month schedule where groundwater quality is unknown, as described above.

## WELL DESTRUCTION

The process for well destruction depends on the size and depth of the well and casing materials. Generally, for shallower and/or small diameter wells, the well would be over-drilled and the borehole would be backfilled with grout or another annular sealing material approved by the Sacramento County Environmental Management Department (EMD). Larger or deeper wells would require perforating the casing (often with a subsurface explosion containing bb's) and then pressure-grouting the well/borehole and capping above-grade with cement. The sealing material would completely fill the boring. Well deconstruction would range from approximately one to four weeks depending on the size and depth of the well from start to finish of construction activities.

For the well destruction stage, the City would demolish approximately one to four wells per year over the next five to 25 years. This generalized schedule is based on the estimated remaining useful life of the existing wells identified to be replaced, though the schedule could be longer if any individual wells perform adequately longer than currently expected (i.e., despite some well degradation, well still operates at 75 percent of original capacity). All wells would be destroyed in accordance with California Well Standards (DWR Bulletin 74-81 and 74-90) and Sacramento County requirements. Well destruction would include the removal of all above-ground facilities at the well site, with the exception of fencing, and underground piping would be abandoned in place. Exceptions include locations where replacement wells are sited at the existing well facility, in which case only the existing well would be destroyed and all other facilities would be reused. Destruction of up to 38 existing active and inactive groundwater extraction wells nearing the end of their useful life is not tied to the construction of proposed replacement wells, except where replacement wells are located at the same site.

### 2.6.3 EQUIPMENT AND STAGING

The anticipated equipment required for construction of each well is shown in **Table 2.6-2**.

**Table 2.6-2: Construction Equipment for Wells**

Equipment	Number Required for Each Well
Backhoe/Loader	1
Excavator	1
Compactor	1
Drilling Rig with up to 3 support vehicles	1

Equipment	Number Required for Each Well
Crane	1
Utility Truck	1
Water Truck	1
Welder	1
Compressor	1
Pump	1
Pick-up Trucks	2
Concrete Pumper	1
Cement Mixer	1
Asphalt Truck	1
Generator	1

It is anticipated that there would be an average of approximately 30 worker trips per day during construction with intermittent days requiring up to 90 vehicle trips and some days requiring only one or two trips. In addition to the well site footprint, a nearby staging area of approximately 60 feet by 90 feet has been identified for all required equipment to minimize disturbance to existing facilities during construction. Existing paved areas, such as parking lots or basketball courts, have been identified at proposed replacement well locations for use in staging and materials lay-down. Where paved areas for staging are not available, staging would occur within the 100-foot radius of the wellhead location and the site restored following construction.

#### 2.6.4 OPERATION AND MAINTENANCE

Annual operation and maintenance for the 38 replacement wells would require consumption of power, chemicals and regular maintenance activities. Power requirements vary by well according to the pumping capacity and number of operating days per month, which varies according to water year type. During planned operation days, wells are assumed to pump for 24 hours. **Table 2.6-1** includes the pumping capacity for each of the 38 replacement wells. Well pumps to be installed at all replacement wells would be 90 indicated horsepower (IHP), with the exception of Well 38 which would include a 222 IHP pump and Well 23 which would include a 56 IHP pump.

Regular well maintenance for each well would include delivery of fluoride (liquid or powdered/granular) and of chlorine gas, sodium chloride salts (for on-site generation of sodium hypochlorite), or liquid sodium hypochlorite and well crew visits (one to two trips to each well per week), machinist visits (one weekly visit to each well), and electrical and instrumentation and site/landscape maintenance crew weekly visits to each well. Water quality sampling by City staff would occur on a quarterly basis for the first year of well operation and triennially after the first year. Machinist and electrical/instrumentation crew visits would likely occur monthly when wells are new, with increasing frequency through time). Intermittent well maintenance activities would include pump testing and maintenance, well capacity testing, video surveying, or rehabilitation of the well during the life of the well.

It is possible that groundwater treatment for the removal of constituents such as manganese, iron, arsenic, methane, hydrogen sulfide, or other constituents could be necessary prior to introducing the supply to the distribution system. Treatment methodologies would vary depending on the type of constituent but could include filtration, aeration, carbon absorption, ion exchange, or oxidation. The footprint of treatment system, chemicals used, and maintenance requirements would also vary depending on the treatment method used, but would include, at a minimum, regular site visits by maintenance personnel to monitor system operations (likely one bi-weekly to one monthly visit or as the need arises), replace treatment media, and/or deliver chemicals for use in groundwater treatment. The maintenance requirements for treatment systems would be site-specific and would vary depending on the constituent to be removed, constituent concentration, treatment system size and production rates. Backwash stored at these sites would first be stored in a water storage tank then disposed of through a sewer connection or pumped and hauled away to be disposed of offsite every couple of months. Whenever possible, the City would recycle some of the backwash water through the treatment process to reduce water loss.

## 2.7 ENVIRONMENTAL COMMITMENTS

The following measures are environmental commitments and best practices that would be implemented by the City as part of the project:

- Block wall (CMU) buildings would be constructed around well facilities, where needed for noise control.
- Permanent LED exterior security lighting would be shielded downward to avoid light spillage onto surrounding properties.
- The design and construction of the facilities would be based on known groundwater quality conditions, soils reports, and geotechnical investigations to minimize requirements for wellhead treatment.
- Replacement well sites would be restored (e.g., sites would be repaved or resodded or reseeded with native grasses) or left in a natural state as appropriate for California following well construction.
- Groundwater encountered during construction would be discharged to land or the storm drain in accordance with applicable permits or discharged to the City's sewer system for treatment and reuse in accordance with a permit from the Sacramento County Regional Sanitation District.
- All construction work would require the contractor to implement fire hazard reduction measures, such as having fire extinguishers located onsite, use of spark arrestors on equipment and using a spotter during welding (hot work) activities.
- Construction would comply with Sacramento Metropolitan Air Quality Management District Rule 403 Fugitive Dust Control requirements.

- Specifications would require the contractor to prepare a Stormwater Pollution Prevention Plan) with Best Management Practices implemented to control water quality of stormwater discharges offsite.

## 2.8 ANTICIPATED PERMITS AND APPROVALS

Anticipated permits and approvals needed for the Project are identified in **Table 2.8-1**.

Sacramento City Code 13.04.670 exempts the City from having to obtain a permit from Sacramento County, Environmental Management Department in order to drill or destroy a well so long as the well or pump is owned or operated by or on behalf of the City for municipal purposes.

**Table 2.8-1 Permits and Approvals**

Agency	Permit/Approval
City of Sacramento	- Encroachment Permit, Building Permit, Approval for Tree Removal
Sacramento Metropolitan Air Quality Management District	- Permit to Construct, Permit to Operate for emergency generators
Sacramento County Environmental Management Department	- Hazardous Materials Business Permit for storage of chemicals at well sites California Accidental Release Prevention Program registration (if required for storage of treatment chemicals at well sites)
Sacramento County Flood Control Agency	- Encroachment Permit
Sacramento County Regional Sanitation District	- Discharges of groundwater to sanitary sewer or combined sewer system during construction - Discharges of backwash water to sanitary sewer during operation
California Division of Drinking Water of State Water Resources Control Board	- Amended Water Supply Permit
State Water Resources Control Board	- NPDES Construction General Permit for Storm Water Discharges associated with Construction Activities
Central Valley Regional Water Quality Control Board	- NPDES Permit/ Waste Discharge Requirements (WDRs) for groundwater and/or test water discharges during construction (or coverage under General Permit)
California Department of Toxic Substances Control	- USEPA ID for any hazardous waste hauled from well sites
United States Environmental Protection Agency	- Risk Management Program registration for regulated substances exceeding reportable quantity threshold (20 Code of Federal Regulations Part 68 [68.130])

## CHAPTER 3. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

### 3.0 INTRODUCTION AND ENVIRONMENTAL ANALYSIS APPROACH

#### *3.0.1 IMPACTS NOT FOUND TO BE SIGNIFICANT*

An Initial Study was prepared and circulated with the Notice of Preparation to determine which environmental resources required detailed evaluation in the Draft EIR (see Appendix A). Based on the evaluation of impacts in the Initial Study, it was determined that the Project would not have significant impacts on: Agriculture and Forestry Resources, Land Use, Mineral Resources, Population and Housing, Public Services, Utilities and Service Systems, and Wildfire Risk. A detailed discussion of these resources has been excluded from this Draft EIR.

#### *3.0.2 ORGANIZATION OF CHAPTER 3*

Chapter 3 includes evaluations of each environmental resource areas as follows:

- |                              |                                     |
|------------------------------|-------------------------------------|
| 3.1 Aesthetics               | 3.8 Hazards and Hazardous Materials |
| 3.2 Air Quality              | 3.9 Hydrology and Water Quality     |
| 3.3 Biological Resources     | 3.10 Noise                          |
| 3.4 Cultural Resources       | 3.11 Recreation                     |
| 3.5 Energy                   | 3.12 Transportation                 |
| 3.6 Geology and Soils        | 3.13 Tribal Cultural Resources      |
| 3.7 Greenhouse Gas Emissions |                                     |

#### *3.0.3 ORGANIZATION OF ENVIRONMENTAL RESOURCE ANALYSES*

Each environmental resource analysis in Chapter 3.0 contains the following components:

**Environmental Setting** presents the existing environmental conditions within the Project Study Area and surrounding geographic area appropriate to establish baseline conditions for a particular resource, in accordance with CEQA Guidelines Section 15125. The extent of the environmental setting area evaluated (the study area) differs among resources, depending on the locations where impacts would be expected. For example, air quality impacts are assessed for the air basin (macro-scale), as well as the site vicinity (micro-scale), whereas aesthetic impacts are only assessed for the general vicinity.

**Regulatory Framework** presents the laws, regulations, plans, and policies that are relevant to each resource area. Regulations originating from the Federal, State, and/or Local levels are each discussed as appropriate. The Project falls within the City of Sacramento planning areas but, where applicable, Sacramento County plans, policies, and ordinances were also considered in the analysis.

**Impact Analysis** includes the following subheadings:

- **Methodology for Analysis** - The Methodology for Analysis Sections include any resource-specific procedures for assessing and evaluating impacts.
- **Thresholds of Significance** – Presents the thresholds of significance used in this Draft EIR that were developed using criteria from the 2018 CEQA Guidelines' Appendix G Checklist; state, federal, and local regulatory schemes; local and regional plans and ordinances; accepted practices; consultation with recognized experts; and other professional opinions.
- **Impact Assessment** – The Impact Analysis Sections includes an analysis of the Project's potential to cause a significant environmental impact. Potential impacts are assessed by evaluating the Project's potential to result in a substantial adverse change from the baseline conditions established in the Environmental Setting and determined by a comparison with the thresholds of significance set forth in the Thresholds of Significance section. Where a potentially significant impact is identified, mitigation is identified and evaluated for how it reduces potential impacts, where feasible. The discussion includes the substantial evidence supporting the impact significance conclusion.

The potential impacts are organized numerically in each subsection with a discussion of the Project Impacts (e.g., Impact AES-1, Impact AES-2, Impact AES-3). A bold-font environmental impact statement precedes the discussion of each impact, while a summary of its level of significance follows the discussion of each impact.

- **Mitigation Measures** – Lists the feasible mitigation measures identified in the Impact Analysis that could avoid, minimize, rectify, reduce, or compensate for significant adverse impacts, with measures to be fully enforceable through incorporation into the project (Public Resources Code [PRC] Section 21081.6[b]).
- **Cumulative Impact Analysis** – An assessment of the Project's cumulative impacts when considered with the effects of other projects for the project's potential to be considerably compounded or increase other environmental impacts. The approach to the cumulative analysis is described below in Section 3.0.4.

### *3.0.4 ANALYSIS OF CUMULATIVE IMPACTS*

#### **3.0.4.1 CEQA Requirements**

CEQA requires consideration of cumulative impacts. A cumulative impact is created as a result of the combination of the project evaluated in the EIR together with other projects causing related

impacts. Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the Project when added to other closely related past, present, or reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the CEQA Guidelines, and included below:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of an individual project are considerable when viewed in connection with effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
- The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not be as detailed as it is for the effects attributable to the project alone.
- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

The cumulative impact analysis for each individual resource topic is described at the end of each resource section in this Chapter.

### *3.0.5 APPROACH TO CUMULATIVE ANALYSIS*

For evaluation of cumulative impacts, this EIR uses a summary of projections from adopted plans approach, rather than a specific project list-based approach, and evaluates the cumulative impacts and plans and projects set forth in the City of Sacramento 2035 General Plan and its Master EIR as well as the projections in the North American Subbasin and South American Sub Basin Groundwater Sustainability Plans. CEQA Guidelines (Section 15130(d)) states that a discussion of cumulative impacts contained in previously certified EIRs for land use plans may be incorporated by reference pursuant to provisions for tiering and program EIRs, which means that no further analysis of cumulative impacts beyond the incorporated information is required when a project is consistent with the general plan or "comparable programmatic plan" if the lead agency determines that the regional or areawide cumulative impacts relevant to the project have already been "adequately addressed" in a certified EIR for the plan (Section 15130(d)). The 2035 General Plan Master EIR considered the cumulative effects of City-wide projections, including the impacts associated with

development and implementation of the Project (City of Sacramento, 2015). The 2035 General Plan Master EIR is incorporated by reference to account for the cumulative effects of the Project. The discussion in the remainder of this section is included to supplement the analysis of the 2035 General Plan Master EIR and where applicable review its adequacy.

The following objectives were set forth to analyze the short-term construction and long-term operational cumulative impacts:

- Identify if the significance of cumulative impacts of the Project are adequately addressed in the 2035 General Plan Master EIR. And if not adequately addressed, use other project documents and assess cumulative impact. If cumulative impact is significant,
- Determine whether the Project's incremental contribution to that significant impact is cumulatively considerable. If so,
- Determine if mitigation is feasible.

**“Cumulatively considerable”** means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.” (CCR Section 15064(h)(1))

Note: it is possible that even when the cumulative impacts of multiple projects are significant, the incremental contribution of the impact for the Project may itself not be cumulatively considerable (California Code of Regulations [CCR] Section 15064.H4, *Communities for Better Environment Case Law*). Furthermore, a project's contribution is less than cumulatively considerable if the project implements mitigation measures designed to alleviate the cumulative impact (CEQA Guidelines Section 15130 (a)(3)). In this case, the Project's impact would not be cumulatively considerable.

## 3.1 AESTHETICS

Aesthetic resources are defined as the visible, natural, and built landscape features that surround a Project site. This section evaluates the potential aesthetic impacts associated with implementation of the Project. The section includes a description of the environmental setting to establish baseline conditions for aesthetic resources, a summary of applicable regulations, and an evaluation of the Project's potential effects on visual character and aesthetic resources. For the purpose of this analysis, the study area includes aesthetic resources in the vicinity of the facilities to be constructed or modified as part of the Project.

### 3.1.1 ENVIRONMENTAL SETTING

The discussion below defines the terms used in the aesthetics evaluation and describes the visual conditions of the region and study area.

#### 3.1.1.1 Definitions

Visual character, visual quality, and visual sensitivity are three terms used throughout this section. *Visual character* is the unique set of landscape features that combine to make a view. These features include native landforms, water, and vegetation patterns as well as built features such as buildings, roads, and other structures. *Visual quality* is the intrinsic appeal of a landscape or scene due to the combination of natural and built features in the landscape. Natural and built features combine to form unique perspectives with varying degrees of visual quality, which is rated in this analysis as high, moderate, or low. *Visual sensitivity* reflects the level of interest or concern that viewers and responsible land management agencies have for a particular visual resource with visual quality taken into account. Visual sensitivity is a measure of how noticeable proposed changes might be in a particular setting and is determined based on the distance from a viewer, the contrast of the proposed changes, and the duration that a particular view would be available to viewers. For example, areas such as scenic vistas, parks, trails, and scenic roadways typically have a high visual quality and visual sensitivity because these locales are publicly protected, appear natural, view durations are typically long, and close-up views are more commonly available.

#### 3.1.1.2 Regional Setting

The proposed Project is located in the City of Sacramento, which lies within the Sacramento Valley. The topography in the region is generally flat, with aesthetic views characterized by long-range views of flat agricultural lands and open spaces. To the east, the Sierra Nevada and its foothills form a backdrop. Dominant visual characteristics in the region include open sections of valley floor, urbanized land uses, agricultural land uses, and rivers, creeks, and trees.

The Sacramento and American Rivers are the primary natural scenic resources in the City of Sacramento (City of Sacramento, 2015b). The American River Parkway, an open space greenbelt, extends 29 miles from the confluence of the Sacramento River to Folsom Dam. The two rivers

provide recreational opportunities, create a permanent physical break in the pattern of urban development, and provide visual contrast in the City. Open space provides visual relief from urbanized areas, including views for residents, motorists, and pedestrians. Within the City of Sacramento open space is found in conserved lands, park lands, agricultural lands, and vacant lands, with the remaining majority of the urban area developed. Characterized by locals as the “City of Trees” and “The Farm to Fork Capital,” tree-lined streets and buildings dominate the visual characteristics of many of the developed areas, with surrounding rural agricultural areas. Based on the City’s 2035 General Plan, many vacant lands in the City are planned for future development that would alter the visual character from vacant lots with dirt, grasses, shrubs, and pavement to buildings with landscaped streetscapes (City of Sacramento, 2015a).

Sacramento’s downtown is distinguished by high-rise towers, and the downtown skyline is visible from miles around the City. Other noteworthy buildings in downtown Sacramento include the California State Capitol and Sutter’s Fort. Sacramento also includes historic districts such as the Old Sacramento Historic District, Merchants Row Historic District, Boulevard Park Historic District, and Industrial R Street Historic District. More information can be found at:

<http://www.cityofsacramento.org/Community-Development/Resources/Maps/Historic-Districts-Maps> for maps of the City’s historic district.

The City includes substantial developed areas, ranging from single-family residential homes to high-rise office buildings in the downtown area. The City is primarily built-out and has a significant amount of light and glare from existing sources from urban uses, especially in the downtown area. The areas where homes dominate the viewshed are generally areas with more green space, less artificial light (and, therefore, darker nighttime views), and less glare due to the limited amounts of reflective materials.

### **3.1.1.3 Project Vicinity**

The proposed well sites are located throughout Sacramento, as discussed in the *Section 2.5 Project Description* and shown on **Figure 2.6-1**. The proposed well sites are located in a mix of residential, commercial, and mixed-use areas, as summarized in **Table 2.6-1**. The aesthetics of the proposed well sites vary depending on the use of the site and surrounding areas. For example, some proposed well sites are located on vacant parcels, others at existing well sites, in commercial areas, or at schools or parks. Views from proposed well sites include single-family residential neighborhoods, commercial buildings, parking lots, open grass and dirt lots, existing water supply facilities, and surrounding roads. The *Project Description* in Chapter 2 of this EIR includes representative photographs of conceptual well layouts at a park and at a vacant property.

Certain proposed well sites may be located within areas designated as Design Review Districts by the City. The proposed well sites include locations in the Del Paso Heights Design Review District (Wells 10 and 21), Strawberry Manor Design Review District (Well 22), and North Sacramento Design Review District (Wells 24 and 31).

There are no designated scenic highways in the City of Sacramento. The closest scenic highway is the portion of State Route 160 (River Road) from the Isleton Bridge to the Paintersville Bridge (Caltrans, 2019). The portion of State Route 160 within the City is not considered to be a scenic highway.

### ***3.1.2 REGULATORY FRAMEWORK***

This section describes laws and regulations at the local level that may apply to the Project. There are no state or federal aesthetics regulations that apply to the Project.

#### ***3.1.2.1 Local Policies and Regulations***

##### **CITY OF SACRAMENTO 2035 GENERAL PLAN**

The City has identified the following goals and policies in its 2035 General Plan:

**GOAL U.1.1: High-Quality Infrastructure and Services.** Provide and maintain efficient, high-quality public infrastructure facilities and services throughout the City.

- **POLICY U.1.1.10: Safe, Attractive, and Compatible Utility Design.** The City shall ensure that public utility facilities are designed to be safe, aesthetically pleasing, and compatible with adjacent uses.

**GOAL ER 7.1: Visual Resource Preservation.** Maintain and protect significant visual resources and aesthetics that define Sacramento.

- **POLICY ER 7.1.1: Protect Scenic Views.** The City shall avoid or reduce substantial adverse effects of new development on views from public places to the Sacramento and American Rivers and adjacent greenways, landmarks, and the State Capitol along Capitol Mall.
- **POLICY ER 7.1.2: Visually Complementary Development.** The City shall require new development be located and designed to visually complement the natural environment/setting when near the Sacramento and American Rivers, and along streams.
- **POLICY ER 7.1.3: Lighting.** The City shall minimize obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary, and requiring light for development to be directed downward to minimize spill-over onto adjacent properties and reduce vertical glare.

#### ***3.1.2.2 City of Sacramento Planning and Development Code***

The City of Sacramento Planning and Development Code (Title 17 of the Sacramento City Code) includes zoning regulations and regulations for permitted uses, project design and development standards, building heights, parking requirements, landscaping, setbacks, regulations for Specific Plans, land use compatibility, and architectural and site design (City of Sacramento, 2022). The code

establishes design guidelines for the City as a whole, as well as guidelines for Design Review Districts, historic districts and landmarks, planned unit developments, and special planning districts. Development applications in Design Review Districts are reviewed by the City to ensure that the desirability of adjacent and surrounding property is enhanced, and that appropriate development of adjacent properties is encouraged.

### ***3.1.3 IMPACT ANALYSIS***

#### ***3.1.3.1 Methodology for Analysis***

This section describes the methods of evaluation for determining whether construction and operation of the Project would result in significant impacts related to aesthetic resources. The visual analysis was based on evaluations of aerial and ground-based images of the project sites, and preliminary design information.

The evaluation of temporary or short-term visual impacts considered whether construction activities could substantially degrade the existing visual character or quality of the site or surrounding area, as well as the duration over which any such changes would occur. Construction activities were typically considered to have a less-than-significant effect on visual quality. However, construction activities occurring in a specific area for an extended duration (approximately one year or longer) were evaluated for potentially significant visual impacts. Actions with long-term visual effects, such as construction of new structures and introduction of new sources of light and glare, could permanently alter the landscape in a manner that could affect the existing visual character or quality of the area, dependent on the perspective of the viewer. The assessment considered the visual sensitivity of the study area to determine the extent of the potential impact.

#### ***3.1.3.2 Thresholds of Significance***

Consistent with Appendix G of the *CEQA Guidelines*, an impact on aesthetics would be considered significant if the Project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality;
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

#### ***3.1.3.3 Criteria Requiring No Further Evaluation***

The Initial Study (City of Sacramento, 2020) determined that the Project would not have significant impacts associated with the following criteria:

- **Have a substantial adverse effect on a scenic vista.** Project facilities would not be visible from the Sacramento and American Rivers or adjacent greenways and are not located within sight of any landmarks, including the State Capitol. Well 38 is located at the north end of the E.A. Fairbairn Water Treatment Plant, approximately 350 feet from the trail along the American River. However, the well would not be publicly visible from this trail because it would be blocked from view by the hillside below the Fairbairn Water Treatment Plant. Thus, there would be no impact to scenic vistas.
- **Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.** There are no scenic highways in the Project area; there would be no impact to state scenic highways.

### **3.1.3.4 Impact Assessment**

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**Impact AES-1      In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.**

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#### IMPACT AES-1 ANALYSIS

Regulations governing scenic quality are described in *Regulatory Framework* (Section 3.1.2) and are related to designing safe, attractive, and compatible utilities, preserving visual resources, and developing designs compatible with City zoning regulations. The following discussion evaluates the Project's potential to conflict with these regulations during construction and operation.

#### CONSTRUCTION IMPACTS

Construction activities associated with the proposed Project (such as temporary construction fencing, construction lighting, presence of construction vehicles, and materials storage) do not conflict with building design requirements of the City's zoning ordinance because they are temporary (lasting on average 6 to 12 months) and mobile in nature. Construction activities at each new well site would generally occur in disturbed areas and not within the Sacramento and American River greenways, near landmarks, nor the State Capitol; thus, they would not impact the regulated protected scenic views. Any necessary construction lighting would be directed downward and used only as necessary to maintain worksite safety and visibility consistent with 2035 General Plan Policy ER 7.1.3. Construction activities would not have the potential to conflict with zoning or other regulations and therefore would have a less-than-significant impact.

#### OPERATION IMPACTS

Consistent with the Planning and Development Code and other City design standards, the Project includes fencing, block walls, buildings, and landscaping that would screen the 'utility' facilities from the surrounding land uses. Architectural design and treatments would be implemented consistent with 2035 General Plan Policy U.1.1.10 requiring the design to be safe, aesthetically pleasing, and compatible with adjacent uses. As summarized in *Environmental Setting* (Section 3.1.1 above), some

proposed well sites may be located in Design Review Districts that require private developments to enhance the desirability of adjacent and surrounding property. While the Project is a City project and therefore not considered private development, the Project facilities would be designed to be consistent with the requirements of 2035 General Plan Policy U.1.1.10 and to blend in and enhance the surrounding vacant parcels, existing well sites, commercial areas, schools, and parks. Because these Code policies do not dictate design standards for municipal utility facilities such as water supply wells and treatment facilities, the Project would not conflict with the Planning and Development Code or design review requirements governing scenic quality.

For the Project facilities (such as groundwater well pumps, controls, and treatment systems) to be aesthetically pleasing and compatible with adjacent uses consistent with the City's 2035 General Plan Policy U.1.1.10, the facilities would be designed with architectural character enhanced or similar to nearby land uses. As summarized in the project description, many well components would be located in a control building and shielded from view, and well sites would include features such as landscaping and ornamental fencing, where appropriate, to screen treatment systems in visually sensitive areas such as schools and parks.

Goal ER 7.1 of the City's 2035 General Plan requires Visual Resource Preservation to maintain and protect significant visual resources and aesthetics that define Sacramento. The characteristics of parks within the City include the open space, grass, and tree areas that are essential to defining the feel of the City. Although the Project incorporates design measures to reduce impacts to visual quality, some wells would be located in parks, and, depending on the facility design, the Project would have the potential to impact visual quality, which could conflict with the 2035 General Plan Goal ER 7.1 and constitute a potentially significant impact of the Project. In order to avoid impacting the visual quality of visually sensitive areas, such as parks, **Mitigation Measure AES-1** (described in detail in Section 3.1.3.5) would be implemented. **Mitigation Measure AES-1** would reduce the Project's potential to conflict with applicable policies governing scenic quality to a less-than-significant level by ensuring that the visual character of new facilities is consistent with the character of the surrounding area, including building height and color, architectural treatments, and landscaping. Thus, although the well sites may be visible to public and private viewers, they would be designed to match the architectural character of the surrounding communities and environments (including screening vegetation to soften views of the facilities as appropriate). Implementation of **Mitigation Measure AES-1** would reduce visual impacts from Project facilities such that the Project would not conflict with the 2035 General Plan, applicable zoning, or other regulations governing scenic quality, and the impact would be less than significant.

### IMPACT AES-1 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure AES-1 (see Section 3.1.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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**Impact AES-2      Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.**

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## IMPACT AES-2 ANALYSIS

CONSTRUCTION IMPACTS

Because well-drilling activities would need to occur continuously and could require nighttime construction, there would be a need for construction lighting. Nighttime construction would affect views from adjacent residences, depending on their proximity to the well sites. Exposure of nearby residences to nighttime construction lighting would be a potentially significant impact of the Project. **Mitigation Measure AES-2** (described in detail in Section 3.1.3.5) would be implemented to ensure that construction lighting would not result in adverse impacts associated with light and glare by limiting nighttime construction lighting to low illumination sources with warm light bulbs or screening that limits the effects of lighting beyond the construction area. Implementation of **Mitigation Measure AES-2** would reduce this impact to a less-than-significant level because it would ensure that light is directed away from residences so that they would not be exposed to substantial light or glare from nighttime construction lighting.

OPERATION IMPACTS

The Project would not introduce reflective surfaces such as large areas of glass or reflective metals. Therefore, the Project would not result in permanent new sources of glare. As with existing well sites, replacement well sites would require security lighting, and therefore would introduce a new minor light source in the immediate vicinity. As noted in the *Environmental Commitments* section of the *Project Description* (Chapter 2), permanent LED exterior security lighting would be minimized and shielded downward to avoid light spill onto surrounding properties and would not contribute to regional ambient nighttime light pollution. Operational impacts would thus be less than significant.

IMPACT AES-2 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure AES-2 (see Section 3.1.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

**3.1.3.5 Aesthetic Mitigation Measures**

## MITIGATION MEASURE AES-1: DESIGN OF ABOVEGROUND STRUCTURES

To avoid conflicts with zoning and other policies related to scenic quality, aboveground structures (such as control buildings, well facilities and any treatment systems) shall be designed to blend

into the existing visual character of their surroundings, including building and wall height, color, exterior architectural treatments, lighting, and landscaping.

### MITIGATION MEASURE AES-2: LOW ILLUMINATION NIGHTTIME CONSTRUCTION LIGHTING

To minimize impacts from construction nighttime lighting, all nighttime construction lighting shall be of the lowest illumination necessary for Project construction, attached to motion sensors, and shielded and directed downward to avoid light spillage onto neighboring properties. Additionally, where feasible, warm lighting tones shall be selected. If not feasible, shielding or other measures shall be implemented to avoid light spillage onto neighboring properties.

#### **3.1.3.6 Cumulative Impact Analysis**

The 2035 General Plan Master EIR found that cumulative impacts to aesthetic resources within the City's planning area are less than significant when the general plan Policies are implemented. The 2035 General Plan Master EIR is incorporated by reference and the proposed Project is consistent with the 2035 General Plan Master EIR and adheres to the City's policies. The Project's impacts when considered within the impacts of the 2035 General Plan would be less than significant and the Project's contribution to these impacts would not be cumulatively considerable. Therefore, the proposed Project would have a less-than-significant cumulative impact on aesthetic resources.

#### **3.1.4 REFERENCES**

Sacramento, City of. 2015a. Sacramento 2035 General Plan. Adopted March 3, 2015.

Sacramento, City of. 2015b. Environmental Impact Report for the City of Sacramento 2035 General Plan Update. SCH# 2012122006.

Sacramento, City of. 2020. California Environmental Quality Act (CEQA) Initial Study; City of Sacramento Groundwater Master Plan Well Replacement Program. October 2020.

Sacramento, City of. 2022. Sacramento City Code, Title 17, Planning and Development Code. Accessed April 13, 2022. Available online at:

[https://library.qcode.us/lib/sacramento\\_ca/pub/city\\_code/item/title\\_17](https://library.qcode.us/lib/sacramento_ca/pub/city_code/item/title_17)

Caltrans. 2019. Scenic Highways web page. Accessed July 6, 2020. Available online at:

<https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>

#### **3.1.5 AESTHETICS ACRONYMS AND ABBREVIATIONS**

SCH State Clearing House

## 3.2 AIR QUALITY

This section evaluates the potential air quality impacts associated with implementation of the proposed Project. Air quality is evaluated in terms of emissions of air pollutants in the context of ambient conditions. For the purpose of this analysis, the study area includes the air quality in the City's water service area, which is within the Sacramento Valley Air Basin in Sacramento County.

### 3.2.1 ENVIRONMENTAL SETTING

The discussion below describes the air quality conditions of the region and study area, based on publicly available information from the Sacramento Metropolitan Air Quality Management District (SMAQMD) CEQA Guidance & Tools (SMAQMD, 2010; revised 2021).

#### 3.2.1.1 Regional Setting

In Sacramento County, air quality is influenced by geography and meteorological conditions such as wind, sunlight, and atmospheric stability. The geography of Sacramento County can be described as bowl-shaped, defined by mountain ranges to the west and east, with flat terrain in between. Sacramento County sits within the Sacramento Valley Air Basin, which is bounded by the North Coast Ranges to the west and the Sierra Nevada to the east. These mountains create a barrier to air flow under certain meteorological conditions. When high-pressure cells form over the Sacramento Valley Air Basin, reduced air flow traps pollutants in the valley. When a high-pressure cell combines with a temperature inversion that traps cool air, fog, and pollutants near the ground, air pollution becomes concentrated. The prevailing winds in the Sacramento Valley Air Basin are moderate and vary over the year from moist southerly breezes to dry northerly land breezes. However, between May and October, stagnant morning air or light winds with a southwesterly sea breeze from the Delta in the afternoon contribute to "ozone season." During this time of the year, the prevailing afternoon sea breeze transports air pollutants north out of the valley, except when a phenomenon known as the "Schultz Eddy" prevents this from occurring. When a Schultz Eddy forms, wind patterns circle back south, carrying pollution, which exacerbates pollution levels in the area.

In addition to the geography and meteorology described above, ambient air quality is influenced by emissions, which are monitored by the SMAQMD and California Air Resources Board (CARB). In Sacramento County, emissions come from man-made and natural sources. Man-made sources include electric power plants, boilers, and other types of combustion and processing equipment; automobiles, trains, construction equipment, and other mobile sources; and aerosol sprays, lawn mowers, agricultural fields, gas-fired water heaters, and other area sources. Natural sources of air pollutant emissions include wildfires, natural wind-blown dust, and biogenic (vegetation-based) hydrocarbons.

SCAQMD and CARB monitor the following air pollutants, known as criteria air pollutants, to understand whether air quality standards are being violated and whether air pollution reduction efforts are effective: ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and lead. Ambient air quality criteria standards have been set for these criteria pollutants at the federal level by the US Environmental Protection Agency (US EPA)

and at the state level by CARB. Ozone and particulate matter (PM) are described in greater detail than the other criteria air pollutants because Sacramento County currently does not meet air quality standards for those pollutants.

- **Ozone** – Ground-level ozone, also known as smog, forms when Reactive Organic Gases (ROG) and Nitrogen Oxides (NO<sub>x</sub>) react over time in the presence of sunlight. ROG and NO<sub>x</sub> emissions come primarily from internal fuel combustion engines and the evaporation of solvents, paints, and fuels. In Sacramento County, mobile sources account for approximately 65 percent of the combined ROG and NO<sub>x</sub> emissions. Ozone causes respiratory irritation, constriction of the airways, and – at high concentrations - lung tissue damage. It increases susceptibility to respiratory infections and diseases. In addition to its public health concerns, ozone can cause damage to the leaf tissues of crops and natural vegetation; it also can damage materials such as rubber, fiber, and plastics.
- **Particulate Matter** – Particulate matter consists of a mixture of solid particles and liquid droplets that can remain in the atmosphere for many days before settling or washing out. Particulate matter emission sources include combustion, grading and construction, industrial and agricultural processes, tail pipe emissions, fire smoke, tire and brake wear, unpaved road dust, and wood burning. Particulate matter is described by its size: PM<sub>10</sub>, with diameters 10 micrometers and smaller, and PM<sub>2.5</sub>, with diameters 2.5 micrometers and smaller. Particulate matter, especially PM<sub>2.5</sub>, can lodge deep in the lungs, block the flow of oxygen from the lungs to the bloodstream, and even pass from the lungs to the bloodstream and heart, causing respiratory illness, aggravated asthma, development of chronic respiratory disease in children, and many other health problems. It is also the main cause of haze.
- **CO** gas comes primarily from motor vehicle emissions in Sacramento County. It reduces the oxygen-carrying capacity of the blood. No exceedances of the state or federal standards have been recorded at monitoring stations in Sacramento County since 1993 and the County has demonstrated 20 years of maintenance of the federal 8-hour standard.
- **NO<sub>2</sub>** gas comes mostly from motor vehicle and industrial sources. It contributes to ozone and particulate matter formation, increases the risks of respiratory disease, and reduces visibility.
- **SO<sub>2</sub>** gas is colorless with a strong odor because it comes from combustion of sulfur-containing fuels, such as oil, coal, and diesel. It contributes to particulate matter formation and increases respiratory disease risk.
- **Lead** emissions come primarily from industrial and aviation activities in Sacramento County. The contribution of lead pollution from mobile sources has declined substantially due to regulatory efforts to remove lead from motor vehicle gasoline. Nationwide, levels of lead in the air decreased 98 percent between 1980 and 2014. In addition to human health problems, lead in the environment can result in decreased growth and reproduction in plants and animals, and neurological effects in vertebrates.
- **Toxic Air Contaminants (TACs)** – AB 1807 identifies a toxic air contaminant as, “an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health”

(California Health and Safety Code Section 39665). CARB has identified approximately 200 substances or groups of substances as TACs, including particulate emissions from diesel-fueled engines. Diesel exhaust is a complex mixture of gases and fine particles emitted by diesel-fueled internal combustion engines. The gases and particles contain substances known or suspected to be mutagens and carcinogens. Almost all diesel exhaust particle size is in the range of 10 micrometers or less in diameter, which makes it easily inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

### 3.2.1.2 Regional Air Quality Standards and Monitoring

US EPA and CARB set ambient air quality standards for the purpose of protecting public health, which are summarized in **Table 3.2-1**. The process and history of developing the standards is explained in further detail under *Regulatory Framework*. The ambient air quality standards establish a regional concentration above which a pollutant is known to cause health problems for sensitive populations, such as children and the elderly. Standards are set for the federal criteria air pollutants; in addition, CARB has set standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. The standards, known as the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) are summarized in the following table.

Sacramento County has not attained ambient air quality standards for ozone and particulate matter, as summarized in **Table 3.2-2**. A non-attainment status means that measured pollutant concentrations have exceeded the ambient air quality standards and SMAQMD must develop a plan to reach attainment status. Note that US EPA determined Sacramento County to be in attainment of the federal 24-hour PM<sub>2.5</sub> standard in 2017, but it has not yet redesignated the area to attainment (SMAQMD, n.d.). By contrast, attainment status means that measured pollutant concentrations did not exceed the ambient air quality standards and SMAQMD generally must develop a maintenance plan to ensure attainment is maintained.

Air pollution concentrations are measured at nine monitoring stations across Sacramento County (**Table 3.2-3**). The SMAQMD's monitoring stations are part of a nationwide network called State/Local Air Monitoring Stations (SLAMS). The stations measure ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). The stations also measure meteorological parameters such as wind direction, wind speed, relative humidity, temperature, rainfall and solar radiation.

**Table 3.2-1: Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standard	National Standard
Ozone (O <sub>3</sub> )	1 Hour	0.09 ppm	none
Ozone (O <sub>3</sub> )	8 Hour	0.070 ppm	0.070 ppm
Particulate Matter (PM <sub>10</sub> )	24 Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
Particulate Matter (PM <sub>10</sub> )	Annual	20 µg/m <sup>3</sup>	none
Particulate Matter (PM <sub>2.5</sub> )	24 Hour	none	35 µg/m <sup>3</sup>
Particulate Matter (PM <sub>2.5</sub> )	Annual	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>

Pollutant	Averaging Time	California Standard	National Standard
Carbon Monoxide (CO)	1 Hour	20 ppm	35 ppm
Carbon Monoxide (CO)	8 Hour	9 ppm	9 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	1 Hour	0.18 ppm	0.010 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	Annual	0.030 ppm	0.053 ppm
Sulfur Dioxide (SO <sub>2</sub> )	1 Hour	0.25 ppm	75 ppb
Sulfur Dioxide (SO <sub>2</sub> )	24 Hour	0.04 ppm	0.14 ppm
Sulfur Dioxide (SO <sub>2</sub> )	Annual Avg	none	0.030 ppm
Lead (Pb)	30-Day Avg	1.5 µg/m <sup>3</sup>	none
Lead (Pb)	Rolling 3-Month Avg	none	0.15 µg/m <sup>3</sup>
Visibility Reducing Particles	8 hour	Extinction of 0.23 per kilometer	none
Sulfates	24 Hour	25 µg/m <sup>3</sup>	none
Hydrogen Sulfide (H <sub>2</sub> S)	1 Hour	0.03 ppm	none
Vinyl Chloride	24 hour	0.01 ppm	none

**Table 3.2-2: Attainment Status of Air Pollutants in Sacramento County**

Air Pollutant	State Designation	Federal Designation
O <sub>3</sub> – 1-hour standard	Nonattainment	n/a
O <sub>3</sub> – 8-hour standard	Nonattainment	Nonattainment (Moderate)
PM <sub>10</sub> 24-hour	Nonattainment	Attainment
PM <sub>10</sub> annual	Nonattainment	Attainment
PM <sub>2.5</sub> 24-hour	Attainment	Nonattainment (Moderate)
PM <sub>2.5</sub> annual	Attainment	Attainment
CO (both 1- and 8-hour)	Attainment	Attainment
NO <sub>2</sub> (both 1-hour and annual)	Attainment	Unclassifiable/ Attainment
SO <sub>2</sub>	Attainment	Attainment/Unclassifiable
Pb (both 30-day and 3-month)	Attainment	Attainment
Visibility Reducing Particles	Unclassified	n/a
Sulfates	Attainment	n/a
Hydrogen Sulfide (H <sub>2</sub> S)	Unclassified	n/a
Vinyl Chloride	Unclassified	n/a

**Table 3.2-3: Historical Air Quality Monitoring Results**

Pollutant	Standard	Threshold	2017 Max Monitored Value	2017 # Days Exceeded	2018 Max Monitored Value	2018 # Days Exceeded	2019 Max Monitored Value	2019 # Days Exceeded
<b>Ozone</b>								
Ozone (O <sub>3</sub> )	State 1-hour	>0.090 ppm	0.121	4	0.117	5	0.103	2
Ozone (O <sub>3</sub> )	State 8-hour	>0.070 ppm	0.092	19	0.098	22	0.082	8
Ozone (O <sub>3</sub> )	Federal 8-hour	>0.070 ppm	0.091	17	0.098	20	0.082	8
<b>Particulate Matter 10</b>								
Particulate Matter (PM <sub>10</sub> )	State 24-hour	>50 µg/m <sup>3</sup>	242.0	19.3	478.7	59.7	179.1	45.3
Particulate Matter (PM <sub>10</sub> )	State Annual	>20 µg/m <sup>3</sup>	22.0	Exceeded	32.3	Exceeded	29.2	Exceeded
Particulate Matter (PM <sub>10</sub> )	Federal 24-hour	>150 µg/m <sup>3</sup>	237.7	6.1	454.0	9	174.7	1
Particulate Matter (PM <sub>10</sub> )	Federal Annual*	>150 µg/m <sup>3</sup>	26.4	Not exceeded	32.4	Not exceeded	28.2	Not exceeded
<b>Particulate Matter 2.5</b>								
Particulate Matter (PM <sub>2.5</sub> )	State Annual	>12 µg/m <sup>3</sup>	14.0	Exceeded	18.1	Exceeded	10.7	Exceeded
Particulate Matter (PM <sub>2.5</sub> )	Federal 24-hour	>35 µg/m <sup>3</sup>	85.9	12.3	411.7	24	41.4	3
Particulate Matter (PM <sub>2.5</sub> )	Federal Annual	>12 µg/m <sup>3</sup>	9.7	Not Exceeded	15.8	Exceeded	8.4	Not Exceeded
<b>Carbon Monoxide</b>								
Carbon Monoxide (CO)	State 1-hour	>20 ppm	1.938	Not Exceeded	4.099	Not Exceeded	1.858	Not Exceeded
Carbon Monoxide (CO)	Federal 1-hour	>35 ppm	1.938	Not Exceeded	4.099	Not Exceeded	1.858	Not Exceeded
<b>Nitrogen Dioxide</b>								
Nitrogen Dioxide (NO <sub>2</sub> )	State 1-hour	>0.180 ppm	0.061	Not Exceeded	0.066	Not Exceeded	0.062	Not Exceeded

Pollutant	Standard	Threshold	2017 Max Monitored Value	2017 # Days Exceeded	2018 Max Monitored Value	2018 # Days Exceeded	2019 Max Monitored Value	2019 # Days Exceeded
Nitrogen Dioxide (NO <sub>2</sub> )	Federal 1-hour	>0.100 ppm	0.061	Not Exceeded	0.066	Not Exceeded	0.062	Not Exceeded
<b>Sulfur Dioxide</b>								
Sulfur Dioxide (SO <sub>2</sub> )	State 1-hour	>0.25 ppm	0.007	Not Exceeded	0.004	Not Exceeded	0.004	Not Exceeded
Sulfur Dioxide (SO <sub>2</sub> )	Federal 1-hour	>0.075 ppm	0.007	Not Exceeded	0.004	Not Exceeded	0.004	Not Exceeded
Sulfur Dioxide (SO <sub>2</sub> )	State 24-hour	>0.04 ppm	0.006	Not Exceeded	0.001	Not Exceeded	0.001	Not Exceeded

Notes: No monitoring data available for CO State and Federal 8-hour threshold, or NO<sub>2</sub> State and Federal annual thresholds.

Sources: Data for 8-hour and 1-hour O<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and NO<sub>2</sub> based on CARB iAdam. Data for CO and SO<sub>2</sub> CARB from Air Quality Data Query Tool. Monitoring data not available for lead, hydrogen sulfide, visibility reducing particles, or vinyl chloride.

### **3.2.1.3 Sensitive Receptors**

Sensitive receptors are facilities or land uses that house or attract people who are especially sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Hospitals, schools, convalescent facilities, daycare centers, and residential areas are examples of sensitive receptors. Air quality impacts occur when sources of air pollutants and sensitive receptors are located near each other.

Sensitive receptors are located within the vicinity of the proposed wells. Surrounding land uses for existing and proposed replacement wells include single-family residential, multi-family residential, and schools. The sensitive receptors near each existing well that would be demolished and near each replacement site are identified in **Tables 2.4-1** and **2.5-1** in the *Project Description* (Chapter 2).

## **3.2.2 REGULATORY FRAMEWORK**

This section describes laws and regulations at the federal, state, and local level that may apply to the Project.

### **3.2.2.1 Federal Policies and Regulations**

Federal air quality programs are administered by the US EPA. US EPA's air quality mandates come primarily from the 1990 federal Clean Air Act Amendments (CAAA). The Clean Air Act was enacted in 1970 and substantially amended in 1990. The 1970 Clean Air Act established the NAAQS and requirements for State Implementation Plans to achieve them. It also established New Source Performance Standards for new and modified stationary sources, established National Emission Standards for Hazardous Air Pollutants (NESHAPs), and authorized requirements for control of motor vehicle emissions. The 1977 Clean Air Act amendments included a provision for the Prevention of Significant Deterioration in areas that had achieved the NAAQS. Finally, the 1990 CAAA included a program to control 189 toxic pollutants, including those previously regulated by the NESHAPs. It also established permit program requirements and expanded and modified enforcement authority.

US EPA regulates Hazardous Air Pollutants (HAPs) through its NESHAPs. The standards for a particular source category require the maximum degree of emission reduction that the US EPA determines to be achievable, which is known as the Maximum Achievable Control Technology (MACT) standards. These standards are authorized by the 1970 Clean Air Act. Currently, 187 substances are regulated as HAPs. There are no NESHAPs applicable to the proposed Project.

### **3.2.2.2 State Policies and Regulations**

The California Clean Air Act (CCAA), which was adopted in 1988, required CARB to establish the CAAQS. The CAAQS must be at least as protective as the NAAQS, but in most cases are more stringent. The CCAA allowed for areas in California to be designated as attainment or

nonattainment of the CAAQS and required the air districts that oversee nonattainment areas to prepare a plan to show progress toward attainment. The CCAA specifies that local air districts should focus on reducing emissions from transportation and area-wide emission sources. The CCAA also provides air districts with the authority to regulate indirect sources.

CARB is primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. CARB oversees state and local air pollution control programs and produces much of the SIP. Local air districts provide additional strategies for sources under their jurisdiction. The CARB combines these data and submits the completed SIP to US EPA. Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

The Tanner Air Toxics Act (AB 1807) set forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified approximately 200 TACs, and adopted the US EPA's list of HAPs as TACs. Most recently, diesel exhaust particulate was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate maximum or best available control technology to minimize emissions. None of the TACs identified by CARB have a safe threshold.

The California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) was adopted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In 2000, CARB adopted the Diesel Risk Reduction Plan, which recommends many control measures to reduce the risks associated with diesel particulate matter. Other measures include the low sulfur diesel fuel requirement, tighter emission standards for heavy-duty diesel trucks and off-road diesel equipment nationwide. For example, the Truck and Bus regulation, which has been in effect since December 2008, is now in the last replacement phase of the regulation with a final deadline of January 1, 2023 for fleet operators to upgrade to 2010 or newer model year engines. Over time, the replacement of older vehicles results in a vehicle fleet that produces substantially less TACs. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) will be reduced further in California through a progression of regulatory measures, including the Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations, and control technologies.

### 3.2.2.3 Local Policies and Regulations

#### SMAQMD AIR QUALITY PLANS

The applicable air quality plans include the federal attainment plans for ozone O<sub>3</sub> and particulate PM<sub>2.5</sub>, and the state attainment plan for O<sub>3</sub> and PM<sub>10</sub>. The applicable plans for attaining the NAAQS and CAAQS are:

- **Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan.** The plan to attain the federal O<sub>3</sub> standards in the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (SMAQMD, 2017), was approved by the US EPA in 2018. This plan was developed with participation from the CARB, SACOG, and the Bay Area Metropolitan Transportation Commission (MTC), as well as the five local air districts in the Sacramento Federal Ozone Nonattainment Area (SMAQMD, Yolo-Solano AQMD, Feather River AQMD, Placer County APCD, and El Dorado County AQMD). The plan also includes an updated emissions inventory, sets motor vehicle emissions budgets, demonstrates how it complies with vehicle miles traveled (VMT) emissions offset and reasonably available control measure (RACM) requirements, and documents modeling assumptions.
- **SMAQMD's Triennial Report and Air Quality Plan Revision. The Air Quality Attainment Plan (AQAP)** addresses nonattainment status for state O<sub>3</sub> and PM<sub>10</sub> standards. The first AQAP was prepared in 1991, and is updated every three years, in accordance with requirements of the California Clean Air Act. However, the most current update is the 2015 Triennial Report and Air Quality Plan Revision (SMAQMD, 2015).
- **PM<sub>10</sub> Implementation/ Maintenance Plan and Redesignation Request for Sacramento County.** The Sacramento region was classified as attainment for the 1997 PM<sub>10</sub> 24-hour NAAQS of 150 µg/m<sup>3</sup>. In October 2010, SMAQMD prepared the PM<sub>10</sub> Implementation/ Maintenance Plan and Redesignation Request for Sacramento County (SMAQMD, 2010b). US EPA approved the request, which allowed U.S EPA to proceed with the redesignation of Sacramento County as attainment for the PM<sub>10</sub> NAAQS. The approval of the first Maintenance Plan showed maintenance from 2013 through 2023. A second plan must provide for maintenance of the NAAQS for 10 more years after expiration of the first 10-year maintenance period. SMAQMD adopted and submitted the Second 10-Year PM<sub>10</sub> Maintenance Plan for Sacramento County in August 2021 to demonstrate maintenance of the PM<sub>10</sub> standard through 2033 (SMAQMD, 2021).
- **PM<sub>2.5</sub> Maintenance Plan and Redesignation Request.** The PM<sub>2.5</sub> Implementation/ Maintenance Plan and Resignation Request for Sacramento PM<sub>2.5</sub> Nonattainment Area (SMAQMD, 2013) addresses the 24-hour federal PM<sub>2.5</sub> standard. The Sacramento PM<sub>2.5</sub> Planning Region includes all of Sacramento County and portions of neighboring Yolo, El Dorado, and Placer Counties. The region attained the standard based on 2009–2011 monitoring data but postponed the submittal of the plan because of high concentrations in 2012 that caused exceedances. As of May 2017, US EPA found that the region attained the

24-hour federal PM<sub>2.5</sub> standard. The PM<sub>2.5</sub> Implementation/ Maintenance Plan and Resignation Request for Sacramento PM<sub>2.5</sub> Nonattainment Area will be updated and submitted in the future based on the clean data finding made by the US EPA.

- **2004 Revision to the California State Implementation Plan for CO.** CARB developed a maintenance plan for CO in 1996 (CARB, 2004). The 2004 Revision to the California State Implementation Plan for CO extends the 1996 CO maintenance plan demonstration to 2018 in order to meet the requirements of the CCAA to demonstrate that the area will maintain the standard for a full 20 years. The revisions incorporated updated transportation information, air quality data, and emissions forecasts, and demonstrated that CARB regulations would continue to cut CO emissions through 2018. The 2004 Revision is the latest plan for CO.

## SMAQMD THRESHOLDS

To accomplish its mandate to attain federal and state ambient air quality standards, SMAQMD follows its guidance (SMAQMD, 2010; revised 2021) and conducts project-level review. SMAQMD set forth mass emissions thresholds for ozone O<sub>3</sub> precursors NO<sub>x</sub> and ROG/VOC, to correlate to the emissions reductions needed to achieve attainment. The mass emission thresholds for particulate matter correlate to the permitting offset trigger levels for stationary sources, which are designed to achieve attainment. SMAQMD's framework for evaluating whether a project would conflict with implementation of the air quality plans, involves comparing an individual project's estimated emissions to the mass emissions thresholds, which are designed to achieve the state and federal ambient air standards. The state and federal ambient air standards are set at levels that provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly.

## SMAQMD RULES AND REGULATIONS

The construction phase of the proposed Project would be subject to the applicable SMAQMD rules and regulations with regard to construction equipment, particulate matter generation, architectural coatings, and paving materials. Equipment used during construction would be subject to the following applicable requirements of SMAQMD:

- **Rule 201: General Permit Requirements.** Rule 201 requires review of new sources of air pollution and permits for stationary sources (such as emergency generators, boilers, and heaters). Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. Certain sources are exempt such as vehicles, internal combustion engines with 50 horsepower or less, and natural gas-powered equipment. Construction equipment such as generators, compressors, and lighting equipment with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or CARB portable equipment registration.

- **Rule 401 (Ringelmann Chart/Opacity).** Limits the discharge of pollutants that create visible emissions and opacity. Specifically, Rule 401 prohibits emissions that are darker in color than shade No. 1 on the Ringelmann Chart or that obscure a human observer's view.
- **Rule 402 (Nuisance).** Prohibits emissions of contaminants that are a nuisance or cause harm to the public.
- **Rule 403 (Fugitive Dust).** Requires reasonable precautions to limit emissions of fugitive dust from being airborne beyond the property line.
- **Rule 404 (Particulate Matter).** Limits emissions of particulate matter to 0.23 grams per dry standard cubic meter.
- **Rule 420 (Sulfur Content of Fuels).** Prohibits use of fuel that contains sulfur compounds in excess of more than 1.14 grams per cubic meter of gaseous fuel.
- **Rule 442 (Architectural Coatings).** Sets limits on the VOC content of architectural coatings sold, used, or manufactured within the SMAQMD. Rule 442 dictates VOC content limits for various categories of coatings and specialty coatings.
- **Rule 453 (Cutback and Emulsified Asphalt Paving Materials).** Prohibits use of rapid or medium cure cutback asphalt, certain slow cure cutback asphalts, and certain and emulsified asphalt. Rule 453 applies to paving materials, paving and maintenance operations.

In addition, if modeled construction-generated emissions of NO<sub>x</sub> and PM are not reduced to a level below SMAQMD's thresholds of significance by the application of Basic Construction Emission Control Practices, Enhanced On-Site Exhaust Controls, and Enhanced Fugitive Dust Control Practices, then SMAQMD recommends using an off-site construction mitigation fee. The fee must be paid before a grading permit can be issued. SMAQMD uses these fees to fund emission reductions in the Sacramento Region. Such emissions reductions are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.

## CITY OF SACRAMENTO 2035 GENERAL PLAN

The City of Sacramento 2035 General Plan contains the following policies which are relevant to air quality:

**GOAL ER 6.1: Improved Air Quality.** Improve the health and sustainability of the community through improved regional air quality and reduced greenhouse gas emissions that affect climate change.

- **Policy ER 6.1.1: Maintain Ambient Air Quality Standards.** The City shall work with the California Air Resources Board and the Sacramento Metropolitan Air Quality Management District to meet State and Federal ambient air quality standards in order to protect residents,

regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.

- **Policy ER 6.1.2: New Development.** The City shall review proposed development projects to ensure projects incorporate feasible measures that reduce construction and operational emissions for reactive organic gases, nitrogen oxides, and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) through project design.
- **Policy ER 6.1.3: Emissions Reduction.** The City shall require development projects that exceed SMAQMD ROG and NO<sub>x</sub> operational thresholds to incorporate design or operational features that reduce emissions equal to 15 percent from the level that would be produced by an unmitigated project.
- **Policy ER 6.1.4: Sensitive Uses.** The City shall coordinate with SMAQMD in evaluating exposure of sensitive receptors to toxic air contaminants, and will impose appropriate conditions on projects to protect public health and safety.
- **Policy ER 6.1.10: Coordination with SMAQMD.** The City shall coordinate with SMAQMD to ensure projects incorporate feasible **mitigation measures** to reduce GHG emissions and air pollution if not already provided for through project design.
- **Policy ER 6.1.11: Reduced Emissions for City Operations.** The City shall promote reduced idling, trip reduction, routing for efficiency, and the use of public transportation, carpooling, and alternate modes of transportation for City operations.
- **Policy ER 6.1.12: Fleet Operations.** The City shall continue to purchase low-emission vehicles for the City's fleet and to use available clean fuel sources for trucks and heavy equipment.
- **Policy ER 6.1.14: Preference for Reduced-Emission Equipment.** The City shall give preference to contractors using reduced emission equipment for City construction projects and contracts for services (e.g., garbage collection), as well as businesses that practice sustainable operations.
- **Policy ER 6.1.15: Air Quality Education.** The City shall educate the public about air quality standards, health effects, and efforts they can make to improve air quality and reduce greenhouse gas emissions in the Sacramento region.

### 3.2.3 IMPACT ANALYSIS

#### 3.2.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to air quality. Emissions of criteria pollutants from the proposed Project were estimated using the California Emissions Estimator Model (CalEEMod) version 2022.1, which was developed in collaboration with the SMAQMD.

## MODEL ASSUMPTIONS AND METHODOLOGY

Project-specific construction and operational information presented in the *Project Description* (Chapter 2) regarding equipment, phase duration, and material import/export as well as energy use and Operation and Maintenance (O&M) activities were used in the CalEEMod model to estimate Project emissions. CalEEMod default values were also used in the model to provide estimates on typical construction and operational values for similar projects for information such as mobile source trip lengths, and soil moisture content. The CalEEMod default that all equipment is diesel fueled was used because the majority of on-site construction equipment used for construction projects is diesel-powered. Likewise, CalEEMod defaults using calendar year statewide average equipment emissions factors, as opposed to tier-specific engine types (i.e., Tier 1, Tier 2, Tier 3, Tier 4 Interim, and Tier 4 final) were used. CalEEMod default average equipment emissions factors were used because they are keyed to CARB's programs for reducing emissions from construction vehicle fleets over time. Default values were overridden when Project information was available or not representative of the Project. Modeling assumptions and results can be found in Appendix C.

To conduct modeling, representative construction activities for construction of a single well were selected from the Project construction details in the *Project Description* (Chapter 2) to provide conservative estimates of activities typical to construction of all of the wells because Project timing for individual well construction and deconstruction is uncertain and could range from one to four wells constructed in any given year over an approximate 15-year period. The representative single well values used for the modeling are summarized in **Table 3.2-4**, **Table 3.2-5**, and **Table 3.2-6**. As shown in **Table 3.2-6**, the on-site construction equipment was assumed to be diesel fueled with average engine types.

**Table 3.2-4: Modeled Construction Phases – Single Well**

Construction Phase	Phase Length (days)	Days/ Week	Start Date	End Date
Site preparation and mobilization	14	5	1/17/2023	2/4/2023
Site grading	6	5	2/7/2023	2/14/2023
Well drilling (test, then production)	45	7	2/15/2023	3/31/2023
Construction and equipping of test well, then production well	179	5	3/7/2023	11/10/2023
Site restoration and paving	10	5	11/11/2023	11/25/2023
Architectural coating and striping	17	5	11/28/2023	12/20/2023
Demolition of existing well and building*	10	5	1/1/2023	1/14/2023

\*Note: CalEEMod requires the demolition phase occur first in the model, even though emissions associated with the demolition phase would occur after the replacement well has been constructed.

**Table 3.2-5: Modeled Off-site Construction Trip Assumptions – Single Well**

Construction Phase	Phase Length (days)	Days/Week	Worker One-Way Trips/ Day	Vendor One-Way Trips/ Day	Hauling One-Way Trips/ Day
Site preparation and mobilization	14	5	8	12	36
Site grading	6	5	10	0	0
Well drilling (test, then production)	45	7	18	0	4
Construction and equipping of test well, then production well	179	5	18	8	0
Site restoration and paving	10	5	16	2	24
Architectural coating and striping	17	5	8	0	0
Demolition of existing well and building	10	5	16	0	4

**Table 3.2-6: Modeled On-site Construction Equipment Assumptions – Single Well**

Construction Phase	Phase Length (days)	Days/Week	Number of Equipment	Hours/Day	Fuel Type	Engine Type	Load Factor	hp
Site prep and mobilization	14	5	1 Grader	8	Diesel	Average	0.41	148
			1 Scraper	8	Diesel	Average	0.48	423
			1 Tractor/Loader/Backhoe	7	Diesel	Average	0.37	84
Site grading	6	5	1 Grader	8	Diesel	Average	0.41	148
			1 Rubber Tired Dozer	8	Diesel	Average	0.40	367
			2 Tractor/Loader/Backhoe	7	Diesel	Average	0.37	84
Well drilling	45	7	1 Welder	8	Diesel	Average	0.45	46
			1 Bore/Drill Rig	24	Diesel	Average	0.50	83
			4 Off-Highway Trucks	8	Diesel	Average	0.38	376
			1 Pump	8	Diesel	Average	0.74	11
			1 Air Compressor	6	Diesel	Average	0.48	37
Well construction and equipping	179	5	1 Crane	8	Diesel	Average	0.29	367
			5 Forklifts	7	Diesel	Average	0.20	82
			1 Generator Set	8	Diesel	Average	0.74	14
			4 Tractor/Loader/Backhoe	7	Diesel	Average	0.37	84
			1 Welders	8	Diesel	Average	0.45	46
			1 Pump	6	Diesel	Average	0.74	11
			1 Off-highway truck	4	Diesel	Average	0.38	376
			1 Cement/Mortar Mixer	8	Diesel	Average	0.56	10
1 Air Compressor	6	Diesel	Average	0.48	37			
Site restoration	10	5	1 Cement/Mortar Mixer	8	Diesel	Average	0.56	10
			1 Paver	8	Diesel	Average	0.42	81
			1 Paving Equipment	8	Diesel	Average	0.36	89
			2 Roller	8	Diesel	Average	0.38	36

Construction Phase	Phase Length (days)	Days/Week	Number of Equipment	Hours/Day	Fuel Type	Engine Type	Load Factor	hp
Site restoration			1 Tractor/Loader/Backhoe	8	Diesel	Average	0.37	84
Coating and striping	17	5	1 Air Compressor	6	Diesel	Average	0.48	37
Demolition	10	5	1 Cement/Mortar Mixer	8	Diesel	Average	0.56	10
			1 Concrete/Industrial Saw	8	Diesel	Average	0.73	33
			1 Rubber Tired Dozer	8	Diesel	Average	0.40	367
			3 Tractor/Loader/Backhoe	8	Diesel	Average	0.37	84

Once the emissions of the representative project were modeled, they were then compared to the SMAQMD mass emissions threshold values to identify how many wells could be constructed at a given time without exceeding the significance thresholds described in the following paragraph. If the modeled emissions of the Project would exceed any of the significance thresholds, then there would be a significant impact and mitigation would be required.

### SMAQMD FRAMEWORK

As mentioned in the *Regulatory Framework* (Section 3.2.2), the SMAQMD established significance thresholds that serve as a framework for evaluating the significance of the Project's emissions. The SMAQMD framework was to compare the Project's emissions to the thresholds defined in **Table 3.2-7**. If the Project's emissions meet or exceed these thresholds, the Project would have a potentially significant adverse impact on air quality.

**Table 3.2-7: SMAQMD Criteria Pollutant Mass Emissions Thresholds**

Mass Emission Threshold	Construction Phase	Operational Phase
NO <sub>x</sub>	85 lbs/day	65 lbs/day
ROG (VOC)	NONE	65 lbs/day
PM <sub>10</sub>	0 or 80 lbs/day and 14.6 tons/year*	0 or 80 lbs/day and 14.6 tons/year*
PM <sub>2.5</sub>	0 or 82 lbs/day and 15 tons/year*	0 or 82 lbs/day and 15 tons/year*

\*If all feasible BACT/BMPs are applied

### OZONE PRECURSORS

If Project emissions of ozone precursors (NO<sub>x</sub> and ROG/VOC) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) do not exceed the mass emissions threshold levels shown in **Table 3.2-7** the Project was found to not have a cumulatively considerable contribution to ozone pollution.

### PARTICULATE MATTER

For particulate matter, the SMAQMD threshold, as explained in the *Regulatory Framework* (Section 3.2.2.3), involves incorporation of best available control technologies (BACT) and best management practices (BMPs) to reduce PM emissions. The Project involves activities that result in emissions of particulate matter (greater than the SMAQMD zero lbs/day threshold), thus the Project applied all feasible BACT/BMPs as required by the SMAQMD and impacts were evaluated against the non-zero standard. Impacts were found significant if they resulted in amounts greater than or equal to 80 lbs/day or 14.6 tons/year of PM<sub>10</sub> or 82 lbs/day or 15 tons/year of PM<sub>2.5</sub> after all feasible BACT/BMPs are applied, as shown in **Table 3.2-7**.

### CARBON MONOXIDE

For CO, the SMAQMD concentration threshold based on the CAAQS for both construction and operation was used. If the Project were to result in CO concentrations that exceed the state ambient air quality standard of 20 ppm, 1-hour or 9 ppm, 8-hour shown in **Table 3.2-1**, it was determined to have a significant CO impact.

### TOXIC AIR CONTAMINANTS

SMAQMD has not established quantitative thresholds of significance for construction-related toxic air contaminant emissions. Instead, consistent with SMAQMD recommendations, the specific construction-related characteristics of the Project and the proximity to off-site receptors were considered. Information about the construction activities, the types and proximity of receptors to construction, and the amount of on-site diesel-generated PM exhaust estimates were factored into the analysis to assess impacts. Criteria air pollutant mass emissions thresholds were used where applicable and additionally, the Project was found to have a significant impact if the following health risk thresholds for stationary sources were exceeded:

- Cancer risk: An incremental increase in cancer risk greater than 10 in one million at any off-site receptor
- Non-cancer health risk (hazard index): Ground-level concentration of project-generated TACs that would result in a Hazard Index greater than 1 at any off-site receptor.

The impact analysis followed the SMAQMD recommendations. It also relied on Office of Environmental Health Hazard Assessment's guidance (OEHHA, 2015) for the exposure period that should be used in basing health risk of sensitive receptors to TAC emissions. OEHHA recommends a 30-year exposure period for estimating cancer risk at the Maximum Exposed Individual (MEI), with 9- and 70-year exposure periods at the MEI as supplemental information. SMAQMD has not established quantitative mass daily emissions thresholds of significance for construction-related toxic air contaminant emissions. Thus, the impact analysis also relied on South Coast Air Quality Management District (SCAQMD, 2009) recommended mass daily emissions thresholds to evaluate the localized health impacts of diesel particulate matter, which is a TAC the Project would emit, on

receptors within 25 meters (82 feet). SCAQMD has set localized significance thresholds as low as 3 lbs/day in areas of the South Coast Air Basin that have the highest ambient levels of PM<sub>2.5</sub>, including diesel particulate matter, to evaluate exposure risk to PM<sub>2.5</sub> for receptors within 25 meters of a fixed source of emissions (such as a construction site).

### CLEAN AIR PLAN

The Project was found to be consistent with the latest adopted clean air plans described in the *Regulatory Framework* (Section 3.2.2) if it would not exceed the SMAQMD significance thresholds and therefore not have a substantial adverse impact on public health. As explained in the *Regulatory Framework* (Section 3.2.2), SMAQMD's framework for evaluating whether a project would conflict with implementation of the air quality plans, involves comparing an individual project's estimated emissions to the mass emissions thresholds, which are designed to achieve the state and federal ambient air quality standards. The state and federal ambient air quality standards are set at levels to protect public health, including the health of sensitive populations, such as children and the elderly. Therefore, this analysis assumes that if the emissions of ozone precursors and particulate matter from the proposed Project are consistent with the project-level significance thresholds, they would not conflict with or impede the goals of the applicable air quality plans.

#### **3.2.3.2 Thresholds of Significance**

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018, an impact on air quality would be considered significant if the Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

As explained under *Methodology for Analysis*, the analysis relies on the significance thresholds developed by the SMAQMD to determine whether the Project may have a significant air quality impact. Projects whose emissions are expected to meet or exceed the recommended significance criteria, shown in **Table 3.2-7** and explained under *SMAQMD Framework*, would have a potentially significant adverse impact on air quality. Specifically, the Project would have a potentially significant adverse impact on air quality if emissions from the Project would:

- Cause construction-generated criteria air pollutant or precursor emissions to exceed the SMAQMD-recommended thresholds of 85 lb/day for NO<sub>x</sub>;
- Cause construction-generated emissions to exceed 80 lb/day or 14.6 tons/year for PM<sub>10</sub> and 82 lb/day or 15 tons/year for PM<sub>2.5</sub> (if all the best available control

- technologies (BACT) and best management practices (BMT) are applied to construction);
- Result in a net increase in long-term operational criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended thresholds of 65 lb/day for ROG and NO<sub>x</sub>;
  - Result in a net increase in long-term operational emission exceeding 80 lb/day or 14.6 tons/year for PM<sub>10</sub> and 82 lb/day or 15 tons/year for PM<sub>2.5</sub> (if all the BACT and BMT are applied);
  - Result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 parts per million (ppm) or the 8-hour CAAQS of 9 ppm; and/or
  - Expose sensitive receptors to a substantial incremental increase in TAC emissions that exceed 10 in one million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater.

### 3.2.3.3 Criteria Requiring No Further Evaluation

The Initial Study determined that the Project would not have significant impacts associated with the following criteria:

- **Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.** As explained in the Initial Study, construction odors associated with vehicle exhaust would be temporary and occur during daytime hours when meteorological conditions are favorable to dispersion. Groundwater extraction wells, including any associated water treatment facilities, are not a type of land use that is typically associated with nuisance odors, such as landfills, wastewater treatment plants, petroleum refineries, chemical manufacturing plants, painting/coating operations, and food packing plants. Therefore, the Project would not result in odors that would impact a substantial number of people.

### 3.2.3.4 Impact Assessment

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**Impact AIR-1      Conflict with or obstruct implementation of the applicable air quality plan.**

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#### IMPACT AIR-1 ANALYSIS

The air quality plans applicable to the proposed Project are described in detail in the *Regulatory Framework* (Section 3.2.2). The following discussion includes an analysis of the Project's potential to conflict with or obstruct implementation of these plans.

The Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (SMAQMD, 2017), which addresses attainment of the federal eight-hour O<sub>3</sub> standard, and the 2015

Triennial Report and Air Quality Plan Revision (SMAQMD, 2015), which addresses attainment of the state O<sub>3</sub> and PM<sub>10</sub> standards, are the current plans governing the attainment of ozone and particulate matter, the two criteria air pollutants for which the Sacramento Valley Air Basin is nonattainment. These plans demonstrate reasonable progress toward attainment, as required by the CCAA. SMAQMD's PM<sub>10</sub> Implementation/ Maintenance Plan and Redesignation Request for Sacramento County and PM<sub>2.5</sub> Maintenance Plan and Redesignation Request demonstrate maintenance and the reasonable progress toward and sustaining attainment of PM<sub>10</sub> and PM<sub>2.5</sub>. NAAQS, while the 2004 Revision to the California State Implementation Plan for CO demonstrates maintenance of the carbon monoxide standards.

As discussed further under *Impact AIR-2 Analysis*, below, the Project will incorporate mitigation measures to reduce emissions of NO<sub>x</sub>, ROG, and PM to below the SMAQMD regional mass daily thresholds. In addition to mitigating *Impact AIR-2*, implementation of these measures would also avoid conflict with the air quality standards and applicable air quality plans. **Mitigation Measure AIR-1, Mitigation Measure AIR-2, and Mitigation Measure AIR-3** (described in greater detail in Section 3.2.3.5) require implementation of these SMAQMD required BACT/BMP measures. **Mitigation Measure AIR-1: Basic Construction Fugitive Dust Emissions Control Practices** controls for fugitive dust emissions, including PM associated with fugitive dust. **Mitigation Measure AIR-2: Construction Diesel Exhaust Emission Control** controls for diesel exhaust, a component of PM<sub>2.5</sub> exhaust. Implementation of **Mitigation Measure AIR-3: Construction Equipment Inspection and Maintenance** requires construction equipment to be kept in proper working condition, which would also control diesel exhaust. These measures would implement (BACT) and (BMPs), reducing the potential for PM emissions and allowing for implementation of the non-zero SMAQMD PM thresholds described in the *Methodology for Analysis* (Section 3.2.3.1). Finally, implementation of **Mitigation Measure AIR-4: Phasing of Well Drilling** ensures the Project is constructed in a way that limits potential NO<sub>x</sub> emissions to below SMAQMD thresholds, which would further reduce the risk of conflicting with or obstructing the implementation of the applicable air quality control plans.

As explained further in *Impact AIR-2*, below, with incorporation of **Mitigation Measures AIR-1, AIR-2, AIR-3, and AIR-4**, the proposed Project emissions of NO<sub>x</sub>, ROG, PM<sub>10</sub>, and PM<sub>2.5</sub> would be less than SMAQMD's project-level significance thresholds. SMAQMD's project-level significance thresholds are designed to achieve the state and federal ambient air quality standards. Therefore, the proposed Project would not conflict with or obstruct implementation of the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (SMAQMD, 2017), the 2015 Triennial Report and Air Quality Plan Revision (SMAQMD, 2015), nor the PM<sub>10</sub>, PM<sub>2.5</sub> and CO Maintenance Plans which address attainment of the federal and state ozone, particulate matter, and carbon monoxide standards. Impacts would be less than significant with mitigation incorporated.

### IMPACT AIR-1 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure AIR 1, AIR 2, AIR-3 and AIR-4 (see Section 3.2.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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**Impact AIR-2      Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.**

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## IMPACT AIR-2 ANALYSIS

As shown in the *Environmental Setting* (Section 3.2.1, **Table 3.2-2**), Sacramento County is in Nonattainment for O<sub>3</sub> for both the State 1-hour and 8-hour standards and the Federal 8-hour standard; for the PM<sub>10</sub> State 24-hour and annual standard; and for the PM<sub>2.5</sub> Federal 24-hour standard, while it is in Attainment status for other criteria air pollutant standards (**Table 3.2-2**). Cumulatively considerable net increases of O<sub>3</sub> precursors NO<sub>x</sub> and ROG, PM<sub>10</sub>, and PM<sub>2.5</sub> are considered for Project emissions associated with construction and operation of the proposed Project.

### CONSTRUCTION IMPACTS

As described in the *Project Description* (Section 2.5), for each well, activities would involve exploratory test well drilling, well drilling and constructing, well equipping and connecting (including construction of additional treatment facilities if needed), and – in some cases – existing well destruction. These activities would result in emissions of criteria air pollutants. These emissions would be primarily from the burning of fossil fuels to operate construction equipment, trucks for materials delivery and hauling, and vehicles for worker trips. Construction also leads to emissions of dust and particulate matter from earth moving activities. Emissions would occur at the well construction or deconstruction site including utility tie-in areas (on-site activities) as well as on surrounding roadways (off-site activities) from materials and equipment transport.

As explained in the *Methodology for Analysis* (Section 3.2.3.1), Project emissions were modeled for the Project using CalEEMod. The emissions from each well prior to the incorporation of fugitive dust, diesel exhaust, and equipment maintenance controls measures (**Mitigation Measures AIR-1, AIR-2, and AIR-3**) are presented in **Table 3.2-8**.

**Table 3.2-8: Criteria Pollutant Emissions from Construction - Single Well - Unmitigated**

Phase	NO <sub>x</sub> (lbs/day)	ROG (VOC) (lbs/day)	PM <sub>10</sub> (lbs/day)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (lbs/day)	PM <sub>2.5</sub> (tons/year)
Site preparation and mobilization	20.3	1.5	3.1	0.02	1.0	<0.005
Site grading	17.6	1.8	8.0	0.02	4.2	0.01
Well drilling	21.6	2.8	1.0	0.02	0.8	0.02
Well construction and equipping	18.7	2.1	1.1	0.1	0.8	0.07

Phase	NO <sub>x</sub> (lbs/day)	ROG (VOC) (lbs/day)	PM <sub>10</sub> (lbs/day)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (lbs/day)	PM <sub>2.5</sub> (tons/year)
Site restoration	10.7	1.3	1.0	<0.005	0.5	<0.005
Coating and striping	1.0	19.3	0.1	<0.005	0.1	<0.005
Demolition	18.1	1.9	1.2	<0.005	0.8	<0.005
Max Emissions	21.6	19.3	8.0	0.1	4.2	0.1
Threshold	85	none	80	14.6	82	15
Significant?	No	No	No	No	No	No

As shown in **Table 3.2-8**, construction emissions of criteria pollutants in Nonattainment for a single well were below the SMAQMD thresholds of significance. SMAQMD would require the City to implement BACT and BMPs for all construction activities in order to rely on the non-zero mass emissions thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> (shown in **Table 3.2-7**, and described further in Sections 3.2.2.3 and 3.2.3.1 above). These BACT and BMPs are described in **Mitigation Measures AIR-1**, **AIR-2**, and **AIR-3** (also described in more detail in Section 3.2.3.5):

- **Mitigation Measure AIR-1: Basic Construction Fugitive Dust Emissions Control Practices** controls for fugitive dust emissions, including PM<sub>10</sub> releases.
- **Mitigation Measures AIR-2: Construction Diesel Exhaust Emission Control** controls for diesel exhaust, a component of PM<sub>2.5</sub>, reducing the potential for PM emissions and allowing for implementation of the SMAQMD second-tier PM thresholds described in the *Methodology for Analysis* (Section 3.2.3.1).
- **Mitigation Measure AIR-3: Construction Equipment Inspection and Maintenance** requires construction equipment to be kept in proper working condition limiting potential excess emissions of criteria pollutants in conflict with the applicable air quality plans.

**Table 3.2-9** shows the modeling results for construction emissions with these mitigation measures incorporated, and illustrates that emissions of PM<sub>10</sub> and PM<sub>2.5</sub> are below the SMAQMD thresholds.

**Table 3.2-9: Criteria Pollutant Emissions from Construction - Single Well - Mitigated**

Phase	NO <sub>x</sub> (lbs/ day)	ROG (VOC) (lbs/day)	PM <sub>10</sub> (lbs/day)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (lbs/day)	PM <sub>2.5</sub> (tons/year)
Site preparation and mobilization	20.3	1.5	2.1	0.01	0.9	<0.005
Site grading	17.6	1.8	3.6	0.01	2.2	<0.005
Well drilling	21.6	2.8	1.0	0.02	0.8	0.02
Well construction and equipping	18.7	2.1	1.1	0.1	0.8	0.07
Site restoration	10.7	1.3	1.0	<0.005	0.5	<0.005
Coating and striping	1.0	19.3	0.1	<0.005	0.1	<0.005
Demolition	18.1	1.9	1.2	<0.005	0.8	<0.005
Max Emissions	21.6	19.3	3.6	0.1	2.2	0.1

Phase	NO <sub>x</sub> (lbs/ day)	ROG (VOC) (lbs/day)	PM <sub>10</sub> (lbs/day)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (lbs/day)	PM <sub>2.5</sub> (tons/year)
<i>Threshold</i>	85	none	80	14.6	82	15
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Consistent with the *Project Description* (Section 2.5), it is assumed that the City would replace the 38 wells over a period of 15 years and construction would take approximately nine (9) to 12 months per well. As shown in **Table 3.2-9**, the construction of a single well would not exceed SMAQMD thresholds of significance and therefore a significant impact would not occur unless construction of multiple wells were to occur at the same time. As shown in **Table 3.2-9**, NO<sub>x</sub> has the highest levels of emissions making it the limiting parameter when evaluating impacts associated with construction of multiple wells at once. The highest NO<sub>x</sub> emissions occur during the drilling and site preparation and mobilization phases resulting in production of approximately 22 lbs/day of emissions per well-constructed. Thus, as modeled, a maximum of three wells could be under construction at one time before the NO<sub>x</sub> emission threshold of 85 lbs/day would be exceeded and a potentially result in a significant considerable increase of criteria air pollutants. To reduce the potential for significant impact, **Mitigation Measure AIR-4** would be required (full text of the measure described in Section 3.2.3.5). This measure would reduce significant levels of NO<sub>x</sub>:

- **Mitigation Measure AIR-4: Phasing of Well Drilling** requires that the City construct the wells in a manner that would not result in NO<sub>x</sub> emissions in exceedance of the 85 lbs/day threshold, which would restrict construction activities and reduce the potential for a cumulatively considerable net increase of a criteria pollutant during construction activities.

Therefore, with the incorporation of **Mitigation Measures AIR-1** through **AIR-4**, construction of the Project would have a less than significant impact.

### OPERATION IMPACTS

As explained in the *Project Description* (Section 2.5.4), O&M activities would involve a handful of trips per week, resulting in minimal emissions from mobile sources. Well sites would be landscaped where appropriate, which would require maintenance activities and result in emissions from area sources. Operation of the wells and well treatment facilities would require electricity, which would be provided by Sacramento Municipal Utility District (SMUD). Indirect criteria pollutant emissions from electricity use are not apportioned to individual projects because SMUD is subject to US EPA rules and regulations to control criteria pollutant emissions at power plants. By using electricity from a regulated power provider to operate the wells, it is assumed the proposed Project's indirect criteria pollutant emissions would be less than significant.

Criteria pollutant emissions from proposed stationary sources, in this case emergency generators, depends greatly upon the duration of use of the generators. Similar to the impacts described for construction, these activities would result in operational emissions of PM, requiring the

incorporation of SMAQMD BMPs to apply the SMAQMD non-zero PM thresholds of significance. These BMPs, which are not mitigation measures, are generally required by existing regulations. They are described under *State Policies and Regulations* and *SMAQMD Rules and Regulations* (Section 3.2.2.3), above and would apply to the operation of stationary source equipment. For example, each emergency generator would comply with Rule 201 in obtaining a permit to construct/ permit to operate prior to installation and comply with the applicable fees described in Rule 301. Project operations would adhere to prohibitory Rules, including 402 (Nuisance) and 420 (Sulfur Content of Fuels). Any diesel-powered commercial motor vehicles used by the City for O&M would be required to limit idling time to 5 minutes and install technologies on the vehicles that support anti-idling.

For long-term operational activities, criteria pollutants were estimated for the entire build-out of the Project (as described in *Chapter 2 Project Description*), based on the assumption that eventually all 38 wells would be operating simultaneously (see Appendix C). However, these emissions would replace emissions from O&M vehicle trips, maintenance, and generators at existing wells. Therefore, there would be a negligible change in emissions from O&M trips, maintenance activities, and generators replaced by the Project compared to baseline conditions. The results are presented in **Table 3.2-10**. Mass emissions, net of baseline conditions, are reported on an annual and highest daily basis. Because CalEEMod accounts for compliance with existing state and local policies and regulations in its unmitigated results, only unmitigated results are presented in the table below; all results can be found in Appendix C.

**Table 3.2-10: Net Criteria Pollutant Emissions from Operations - All Wells**

Phase	NOX (lbs/ day)	ROG (VOC) (lbs/ day)	PM10 (lbs/ day)	PM10 (tons/ year)	PM2.5 (lbs/ day)	PM2.5 (tons/ year)
<b>Stationary</b>	negligible	negligible	negligible	negligible	negligible	negligible
<b>Mobile</b>	negligible	negligible	negligible	negligible	negligible	negligible
<b>Area</b>	negligible	negligible	negligible	negligible	negligible	negligible
<b>Energy<sup>1</sup></b>	n/a	n/a	n/a	n/a	n/a	n/a
<b>Mass Total</b>	negligible	negligible	negligible	negligible	negligible	negligible
<b>Operational Phase Mass emission thresholds (lbs/day)</b>	65	65	80	14.6	82	15
<b>Significant?</b>	No	No	No	No	No	No

1. Indirect criteria pollutant emissions from electricity use are not apportioned to individual projects because SMUD is subject to US EPA rules and regulations to control criteria pollutant emissions at power plants.

As shown in **Table 3.2-10**, the operation of the proposed Project would not produce criteria pollutant emissions that exceed SMAQMD thresholds of significance; therefore, impacts would be less than significant.

IMPACT AIR-2 FINDINGS

**Significance before Mitigation:** Potentially significant

**Mitigation Measures:** **Mitigation Measures** AIR-1, AIR-2, AIR-3 and AIR-4 (See Section 3.2.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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**Impact AIR-3      Expose sensitive receptors to substantial pollutant concentrations.**

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## IMPACT AIR-3 ANALYSIS

CONSTRUCTION IMPACTS

Although hundreds of TACs have been identified by CARB (as explained in Section 3.2.1.1), the only TAC that the proposed Project has the potential to emit in any considerable quantity is diesel particulate matter (diesel PM). Diesel PM was identified as a TAC by CARB in 1998. Construction can cause emissions of diesel exhaust from the use of heavy-duty diesel equipment for site grading, excavation, paving, and other activities. As explained in the *Environmental Setting* (Section 3.2.1) above, diesel exhaust contains substances known or suspected to be mutagens and carcinogens. As described in the *Methodology for Analysis* (Section 3.2.3.1, above), this analysis follows SMAQMD recommendations and discloses the specific construction-related characteristics of the Project, the estimated amount of diesel exhaust, the types and proximity of off-site receptors to Project emissions, and the duration of emissions.

The table below (**Table 3.2-11**) presents the emissions of PM<sub>2.5</sub> exhaust from each phase of project construction of one well, as estimated using CalEEMod. CalEEMod calculates PM<sub>2.5</sub> exhaust and PM<sub>2.5</sub> dust. Diesel PM is a component of PM<sub>2.5</sub> exhaust. Thus, presenting total PM<sub>2.5</sub> exhaust is a conservative proxy for the amount of diesel PM that would be emitted by the Project because total PM<sub>2.5</sub> exhaust includes various other solids and aerosols in addition to diesel PM. The table includes both the unmitigated and mitigated scenarios. The mitigated scenario reflects incorporation of SMAQMD Basic Construction Emission Control Practices (BACT and BMPs), including measures to reduce diesel exhaust emissions (**Mitigation Measures AIR-2** and **AIR-3** required for *Impact AIR-1* and *Impact AIR-2*). The table presents both on-site and off-site emissions. On-site emissions are associated with construction activities at the fixed construction site and are of greater concern for the receptors located near the well site that would be exposed to emissions throughout the construction phase. Off-site emissions are associated with vehicle trips and would be spread out over the haul routes and construction crew commutes, thus not causing concentrated diesel PM emissions at any single receptor during the construction period.

**Table 3.2-11: Exhaust Particulate Matter from Construction - Each Well**

Phase	Unmitigated PM <sub>2.5</sub> Exhaust (lbs/ day)	Mitigated PM <sub>2.5</sub> Exhaust (lbs/ day)
<b>Site preparation and mobilization</b>	0.6	0.6
Onsite	0.55	0.55
Offsite	0.05	0.05
<b>Site grading</b>	0.77	0.77
Onsite	0.77	0.77
Offsite	0	0
<b>Well drilling</b>	0.73	0.73
Onsite	0.72	0.72
Offsite	0.01	0.01
<b>Well construction, equipping</b>	0.77	0.77
Onsite	0.77	0.77
Offsite	< 0.005	< 0.005
<b>Site restoration</b>	0.34	0.34
Onsite	0.31	0.31
Offsite	0.03	0.03
<b>Coating and striping</b>	0.03	0.03
Onsite	0.03	0.03
Offsite	0	0
<b>Demolition</b>	0.72	0.72
Onsite	0.71	0.71
Offsite	0.01	0.01
<b>Max Daily Emissions</b>	<b>0.77</b>	<b>0.77</b>
Onsite	0.77	0.77
Offsite	0.05	0.05
<i>Threshold</i>	3	3
<b>Significant?</b>	<b>No</b>	<b>No</b>

\*CalEEMod does not have a standard tool to estimate PM emission reductions from an equipment inspection and maintenance program (Mitigation Measure AIR-3). CalEEMod assumes compliance with all current CARB regulations in the unmitigated modeled emissions (Mitigation Measure AIR-2). Thus, the Project's mitigated PM<sub>2.5</sub> exhaust levels are the same as calculated unmitigated PM<sub>2.5</sub> exhaust.

Health and cancer risks from diesel PM depend not just on the quantity of emissions, but also on the duration and proximity to the exposure. As mentioned in the *Methodology for Analysis* (Section 3.2.3.1 above), this analysis relies on guidance from OEHHA and SCAQMD to evaluate duration and proximity risk.

The Project's emissions of diesel PM during construction of one well would be short (approximately 12 months or less), compared to the 9- to 70-year exposure timeframe the OEHHA guidance recommends for evaluating diesel PM associated health risks. In terms of proximity, sensitive receptors are located within 500 feet (152 meters) of the well construction sites (presented in **Table 2.6-1** in *Chapter 2 Project Description*). As described in the OEHHA guidance (OEHHA, 2015), health and cancer risks from diesel PM are more likely to occur when exposure is on the order of a decade or more (at least 10 times the exposure length associated with the Project), and the proximity is on

the order of hundreds of feet. The nearby receptors would be exposed to exhaust emissions in amounts dependent on the receptors' presence during construction (i.e., construction at school sites would not occur with receptors present, residents may not be home during the day for the bulk of construction activities, etc.) and dependent on construction phase (with higher on-site emissions shown in **Table 3.2-11** lasting for a matter of weeks rather than the estimated 12 month duration from start to finish). However, the duration of construction would be short, and the maximum daily PM<sub>2.5</sub> emissions would be substantially smaller than the lowest levels determined by SCAQMD to cause unhealthy PM<sub>2.5</sub> emissions at a distance of 25 meters (82 feet) (as shown with unmitigated and mitigated values in **Table 3.2-11**). Therefore, sensitive receptors would not be exposed to a substantial level of unmitigated pollutant concentration during construction and emissions of diesel PM would not result in enough exposure to cause a health impact.

Sensitive receptors are located within close proximity to the well sites. However, Project-related emissions of pollutants, including exhaust and diesel PM, would be short term, temporary, and at low levels. Sensitive receptors would not be exposed to substantial pollutant concentrations. Therefore, Project construction would have a less than significant impact.

### OPERATION IMPACTS

Long-term operational emissions of air pollutants, including diesel exhaust, would be well below SMAQMD significance thresholds. Emissions would be dispersed throughout the Project area and not concentrated within the vicinity of one receptor for a substantial amount of time.

### IMPACT AIR-3 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

### **3.2.3.5 Air Quality Mitigation Measures**

#### MITIGATION MEASURE AIR-1: BASIC CONSTRUCTION FUGITIVE DUST EMISSIONS

##### CONTROL PRACTICES

The following Basic Construction Emissions Control Practices for controlling fugitive dust from a construction site shall be implemented during construction.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- As required by SMAQMD Rule 403, and enforced by SMAQMD staff, fugitive dust emissions shall not be allowed beyond the property line from which construction originates. Reasonable precautions shall include, but are not limited to:
  - Use, where possible, of water or chemicals for control of dust in construction operations.
  - Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.
  - Other means approved by the Air Pollution Control Officer.

#### MITIGATION MEASURE AIR-2: CONSTRUCTION DIESEL EXHAUST EMISSION CONTROL

The following practices, which describe exhaust emission control from diesel powered fleets, shall be implemented at the construction site. California regulations limit idling from both on-road and off-road diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].

#### MITIGATION MEASURE AIR-3: CONSTRUCTION EQUIPMENT INSPECTION AND MAINTENANCE

Although not required by local or state regulation, the construction contractor shall have an equipment inspection and maintenance program to ensure work and fuel efficiencies. The program shall maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

#### MITIGATION MEASURE AIR-4: PHASING OF WELL DRILLING

To ensure that daily emissions of NO<sub>x</sub> do not exceed the SMAQMD significance threshold, prior to the start of construction, the City or its designee shall prepare a plan, to the satisfaction of the SMAQMD, that demonstrates the construction phasing schedule will achieve maximum daily NO<sub>x</sub> emissions of 85 lbs/day or less. If a plan is not prepared, the City shall limit Project construction activities such that a maximum of three wells are under construction at any one time, or the City

shall submit a final report at the end of each construction year to demonstrate compliance. If construction-generated emissions of NO<sub>x</sub> as modeled in the final report are not reduced to a level below SMAQMD's recommended maximum daily level of 85 lbs/day or less, then the City shall pay a mitigation fee into SMAQMD's off-site mitigation program. By paying the appropriate off-site mitigation fee, construction-generated emissions of NO<sub>x</sub> would be reduced to a less-than-significant level. The fee calculation to offset daily NO<sub>x</sub> emissions shall be based on the SMAQMD-determined cost to reduce one ton of NO<sub>x</sub> applicable at the time (currently \$30,000 per ton but subject to change in future years).

### **3.2.3.6 Cumulative Impact Analysis**

The geographic scope of the cumulative impacts on air quality encompasses the Sacramento Valley Air Basin. The SMAQMD approach to developing the project-level thresholds of significance (summarized Section 3.2.2.3) account the cumulative nature of air pollution in the basin. The project-level thresholds are set so that individual project emissions will not be large enough to jeopardize attainment of the ambient air quality standards. If the project-level thresholds are surpassed, the Project would have a cumulatively considerable air pollution impact, when combined with past, present, and future development projects. Therefore, to determine whether the Project's individual emissions would result in a cumulatively considerable adverse contribution to the Sacramento Valley Air Basin's existing air quality conditions, the Project was only evaluated for its consistency with the project-level thresholds. The proposed Project would not result in emissions of air pollutants that exceed the project level thresholds, with adoption of mitigation measures. Therefore, its impacts would not be cumulatively considerable.

SMAQMD would require the City to implement BACT and BMPs, in order to rely on the non-zero mass emissions thresholds for PM<sub>10</sub> and PM<sub>2.5</sub>. With adherence to the BMPs to control emissions, the Project's impacts would be less than significant, and thus not contribute to a considerable cumulative impact on air quality.

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### *3.2.5 AIR QUALITY ACRONYMS AND ABBREVIATIONS*

APCD	Air Pollution Control District
AQAP	Air Quality Attainment Plan
AQMD	Air Quality Management District
AB	Assembly Bill
BACT	Best Available Control Technologies
BMP	Best Management Practice
CARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
GHG	Greenhouse Gases
HAPs	Hazardous Air Pollutants
MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
OEHHA	Office of Environmental Health Hazard Assessment
O <sub>3</sub>	Ozone
PM	Particulate Matter
ROG	Reactive Organic Gases
RACM	Reasonably Available Control Measure

SACOG	Sacramento Area Council of Governments
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SLAMS	State/Local Air Monitoring Stations
SO <sub>2</sub>	Sulfur Dioxide
TACs	Toxic Air Contaminants
US EPA or EPA	United States Environmental Protection Agency
VMT	Vehicle miles traveled

## 3.3 BIOLOGICAL RESOURCES

This section evaluates the potential biological impacts associated with implementation of the proposed Project. The analysis of biological resources focuses on special-status plant and wildlife species or sensitive habitats that are within or surround a Project site. For the purpose of this analysis, the Study Area includes biological resources in the vicinity of the facilities to be constructed or modified under the proposed Project. A Biological Resources Technical Report completed for the proposed Project can be found in Appendix D and is used to describe the biological resources and potential Project impacts below.

### 3.3.1 ENVIRONMENTAL SETTING

#### 3.3.1.1 Regional Setting

The proposed Project is located in the City of Sacramento, which is in the southern portion of the Sacramento Valley, meaning the City has primarily flat terrain, with the Sierra Nevada foothills to the east, floodplains to the west, and Central Valley farmland to the south. Regional watersheds include the Cache Slough-Sacramento River, Lower American River, and Auburn Ravine-Coon Creek.

The climate for this region is Mediterranean, with dry, hot summers and mild winters. Rainfall predominantly occurs between November and March with an annual average precipitation of 18 inches. The region has experience on and off drought conditions since 2012, which means the winters have been drier than average. The average monthly maximum temperature is 73 degrees Fahrenheit, and the average monthly minimum temperature is 49 degrees Fahrenheit.

The proposed Project sites are scattered across the City of Sacramento. Prior to human development, the natural habitats included riparian woodlands, oak woodlands, perennial grasslands, and a variety of wetlands including freshwater marshes, ponds, streams, rivers, seasonal wetlands, and vernal pools (City of Sacramento, 2015). Over the past 150 years, irrigation, agriculture, urbanization, and flood control has resulted in the loss or alteration of much of the natural habitat (City of Sacramento, 2015). Many native grasslands have been replaced with non-native grasses, streams have become channeled streams, woodlands have been cleared, and marshes have been drained and converted. Any remaining natural habitats are located outside of city boundaries as the City of Sacramento itself has become developed.

#### 3.3.1.2 Project Setting

##### PLANT COMMUNITIES AND LAND USES

Project sites are generally located in urban developed residential, commercial, or industrial areas; including parks, schools, or vacant lots. The majority of these sites are landscaped, have maintained vegetation, or are co-located with City infrastructure on a developed site. The undeveloped areas consist of ruderal vegetation or non-native grassland in vacant City lots. Seven land cover types were identified: developed, landscaped, non-native grassland, seasonal wetlands, drainage canals,

ditch, and artificial pond. The sensitive land cover types include seasonal wetland, drainage canal, and ditch while the others are considered non-sensitive. Well sites with sensitive land cover types are shown in **Table 3.3-1**.

**Table 3.3-1: Sensitive Land Cover Types**

Community/Land Cover	Sensitive Status	Rarity Ranking	Wells Sites with Sensitive Land Cover Type
Seasonal wetland	Sensitive	N/A	2, 12, 13, 28, 29, 30, 37
Drainage canal	Sensitive	N/A	24, 30, 39
Ditch	Sensitive	N/A	2, 28

### TERRESTRIAL LAND COVER

The terrestrial land cover includes developed area (no vegetation alliance), landscaped area (no vegetation alliance), and non-native grassland (Wild Oats Grassland-*Avena* spp. Herbaceous Semi-Natural Alliance). None of these land covers have a California Department of Fish and Wildlife (CDFW) rank.

#### **Developed**

Developed areas include areas that are paved or have structures and may include planted trees immediately adjacent to the paved areas. The proposed Project sites include parking lots, access roads, and structures with planted native and non-native trees.

#### **Landscaped**

Landscaped areas include areas that are dominated by vegetation that is regularly maintained such as City parks, fields at City schools, and vegetated median strips within City roads. Vegetation within these areas includes mowed fields of turf grasses such as Bermuda grass (*Cynodon dactylon*), dallis grass (*Paspalum dilatatum*), and bluegrass (*Poa* spp.) along with associated species of white clover (*Trifolium repens*), ribwort (*Plantago lanceolata*), common plantain (*Plantago major*), and common purslane (*Portulaca oleracea*). These areas also include planted and natural stands of native and non-native trees. Native trees include valley oak (*Quercus lobata*), blue oak (*Quercus douglasii*), California sycamore (*Platanus racemosa*), and interior live oak (*Quercus wislizenii*). Some of the non-native trees observed were black locust (*Robinia pseudoacacia*), crape myrtle (*Lagerstroemia indica*), Chinese pistache (*Pistacia chinensis*), and London plane (*Platanus x racemosa*).

#### **Non-Native Grassland**

Many of the proposed well sites have non-native grasslands in undeveloped or unmaintained areas. The non-native grasslands vary in species composition; however, they are commonly dominated by slim oat (*Avena barbata*) and generally fit best in the Wild Oats Grassland alliance. Other non-native grasses that dominated the vegetation include Bermuda grass, ripgut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perennis*), and downy chess (*Bromus tectorum*). Other species include wild

lettuce (*Lactuca saligna*), filaree (*Erodium* spp.), field bindweed (*Convolvulus arvensis*), short-podded mustard (*Hirschfeldia incana*), cheese weed (*Malva parviflora*), and willow herb (*Epilobium brachycarpum*). The non-native grassland areas appear to be regularly maintained, and many of these areas were mowed or disked prior to field observation.

### AQUATIC RESOURCES

Seasonal wetlands (Perennial ryegrass fields-*Festuca perennis* Herbaceous Semi-Natural Alliance; Creeping ryegrass turf-*Elymus triticoides* Herbaceous Alliance), drainage canal (no vegetation alliance), ditch (no vegetation alliance), and pond (no vegetation alliance) were present at well sites. None of these resources, including Italian ryegrass fields in the seasonal wetland, have a CDFW rank. Aquatic resources are shown in **Figure 3.3-1** through **Figure 3.3-8**, and described in more detail in the following subsections.

#### **Seasonal Wetland**

Seasonal wetlands occur in areas where the soil is saturated for long enough to provide sufficient support to hydrophytic vegetation but water is typically absent during the dry season. Several potential seasonal wetlands are present at well sites and most fit the Perennial Ryegrass Field alliance. The proposed site for Well 28 also contained a seasonal wetland that fits best under the Creeping Ryegrass Turf alliance. The seasonal wetlands present at the proposed well sites were found in depressions on areas of compacted soil or in ditches that show no indication of flow. Perennial ryegrass wetlands typically include vegetation such as Italian ryegrass, barley (*Hordeum marinum*), hood canary grass (*Phalaris paradoxa*), smartweed (*Persicaria* sp.), tall cyperus (*Cyperus eragrostis*), hyssop loosetrife (*Lythrum hyssopifolia*), toad rush (*Juncus bufonius*), curly dock (*Rumex crispus*), and bristly ox-tongue (*Helminthotheca echioides*). Creeping ryegrass wetlands are dominated by creeping ryegrass. Indicators of hydric soils and wetland hydrology were observed in proposed well sites 2, 12, 13, 28, 29, 30, and 37; as seen in **Figure 3.3-1**, **Figure 3.3-2**, **Figure 3.3-3**, **Figure 3.3-4**, **Figure 3.3-5**, **Figure 3.3-6**, and **Figure 3.3-7**.

Figure 3.3-1: Sensitive Land Cover Types for Well Site 2

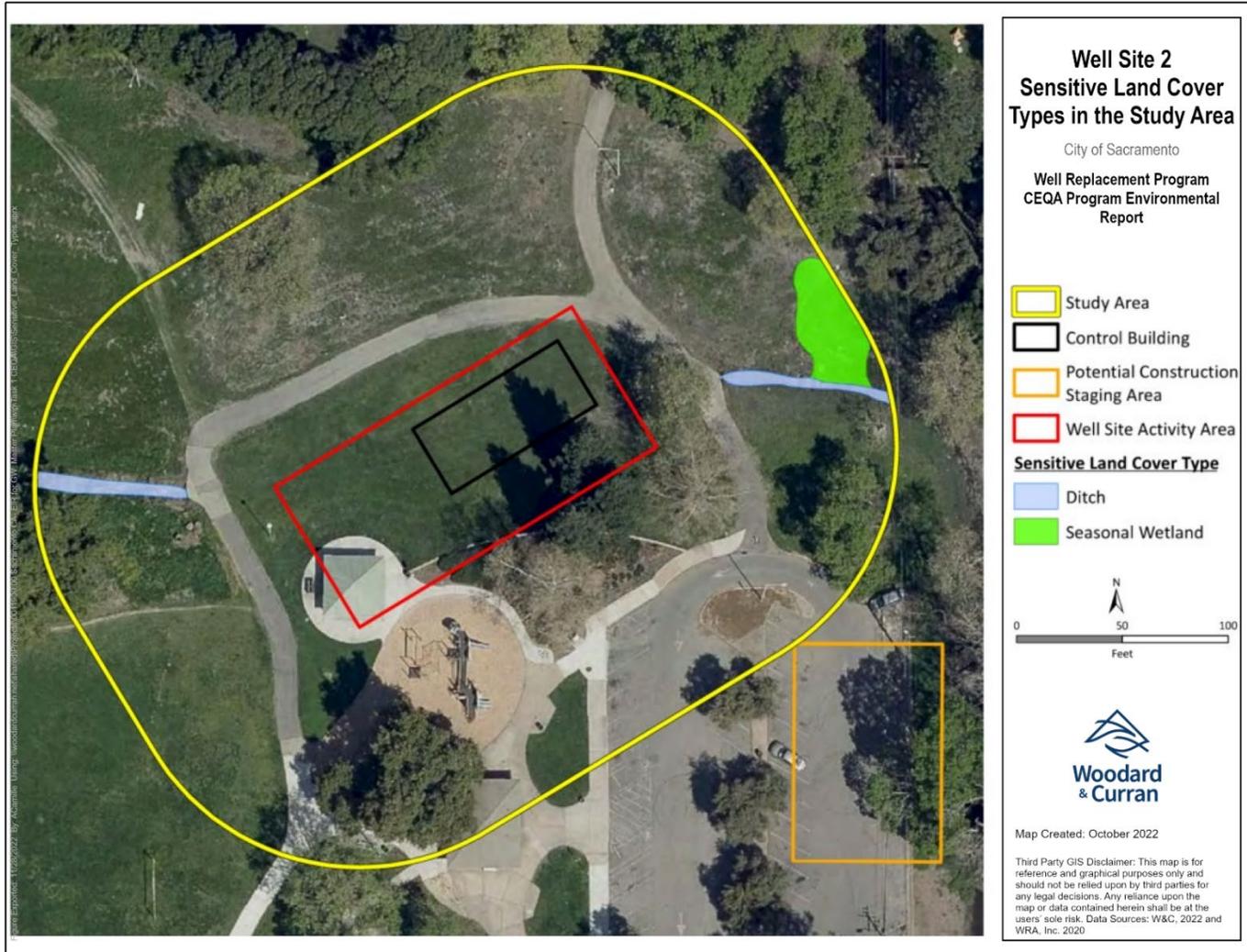


Figure 3.3-2: Sensitive Land Cover Types for Well Site 12 and 37

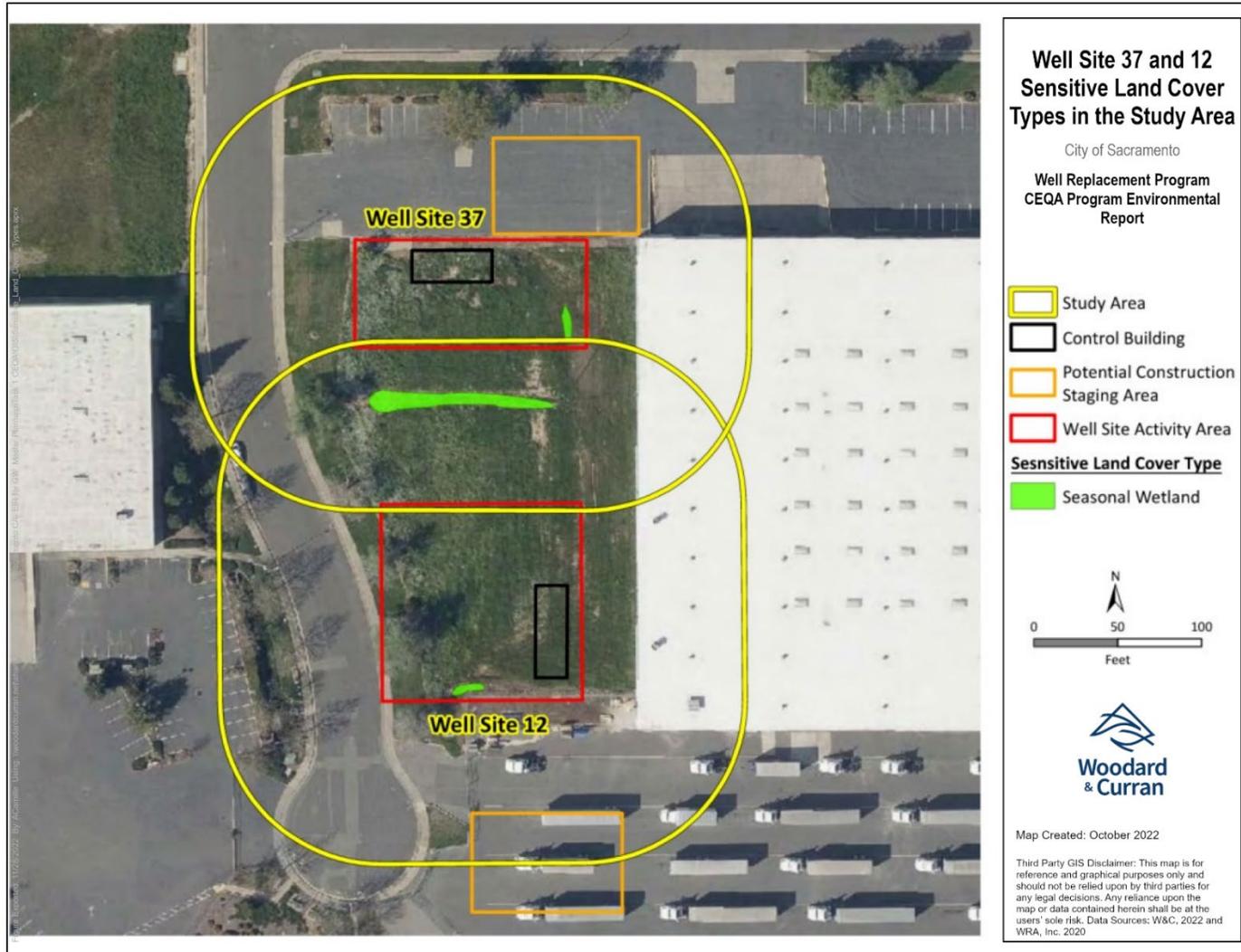


Figure 3.3-3: Sensitive Land Cover Types for Well Site 13

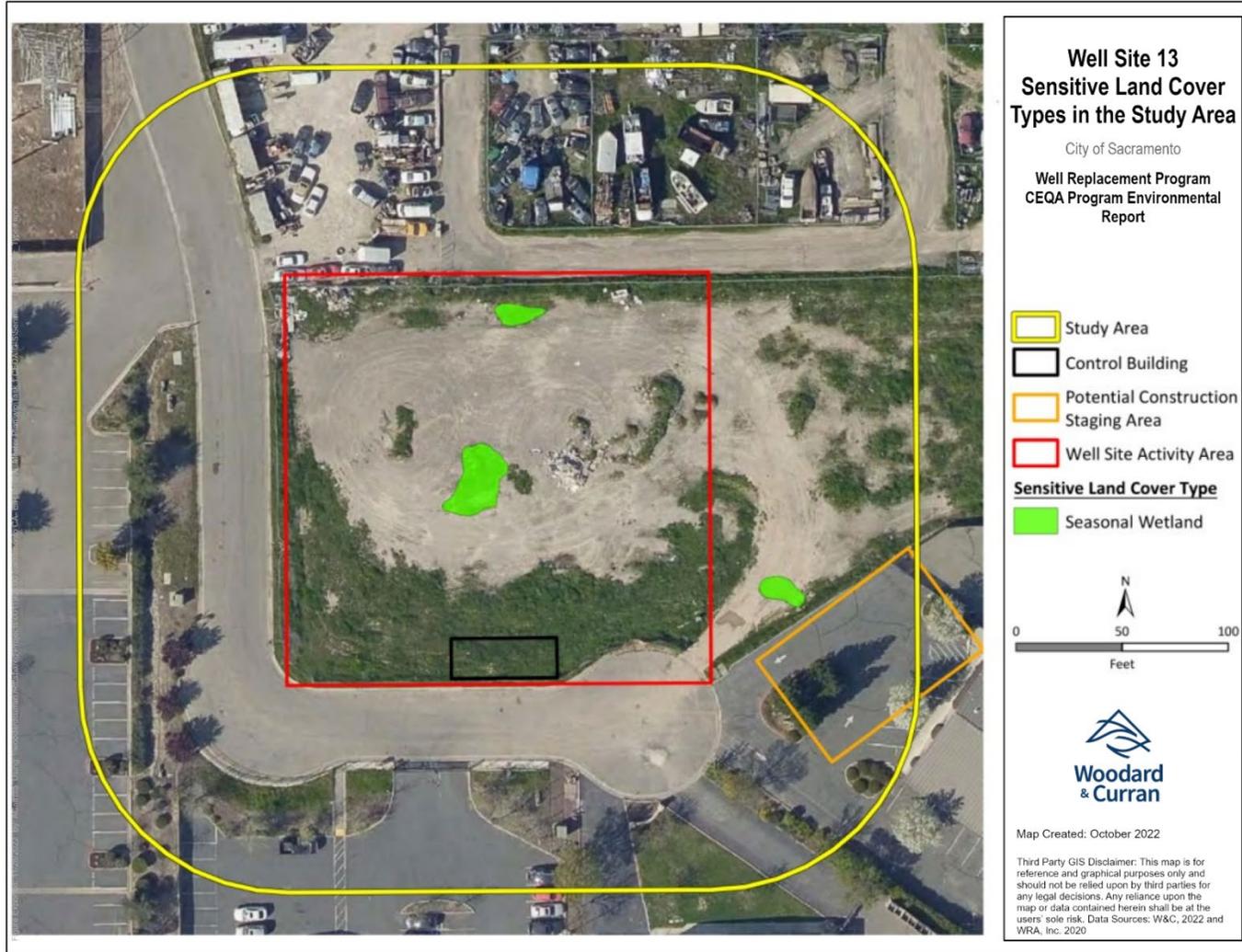


Figure 3.3-4: Sensitive Land Cover Types for Well Site 2



Figure 3.3-5: Sensitive Land Cover Types for Well Site 28

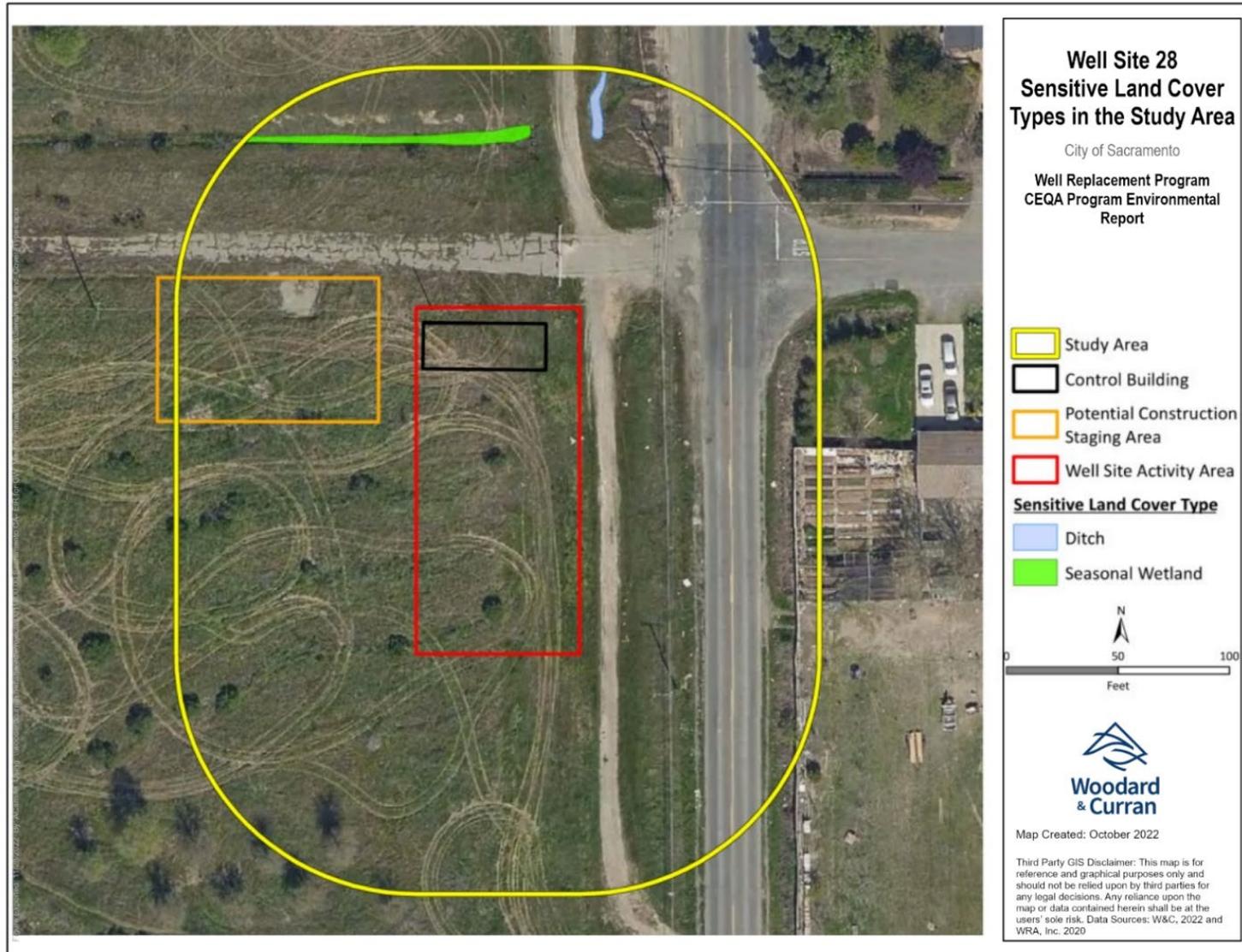


Figure 3.3-6: Sensitive Land Cover Types for Well Site 29

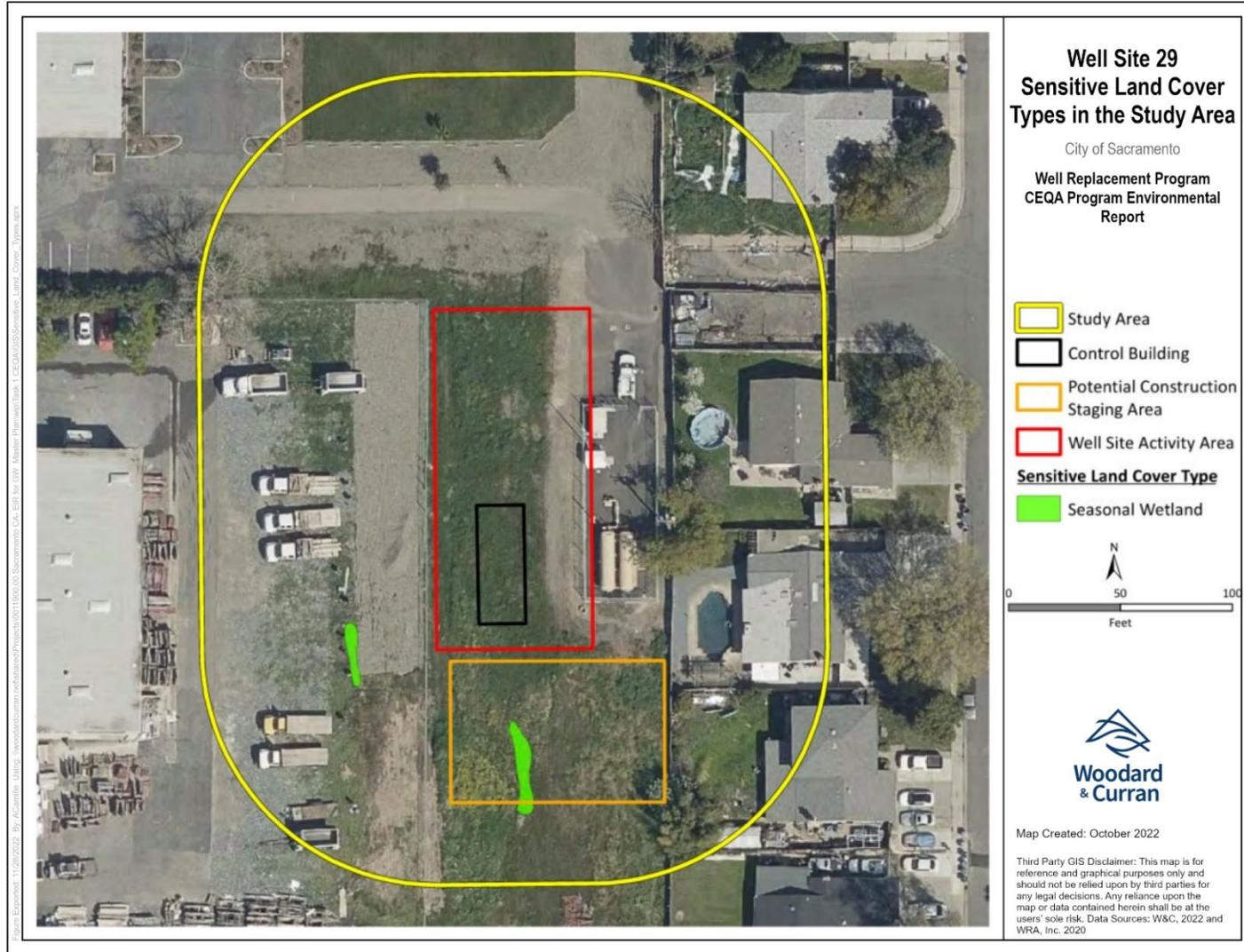


Figure 3.3-7: Sensitive Land Cover Types for Well Site 30

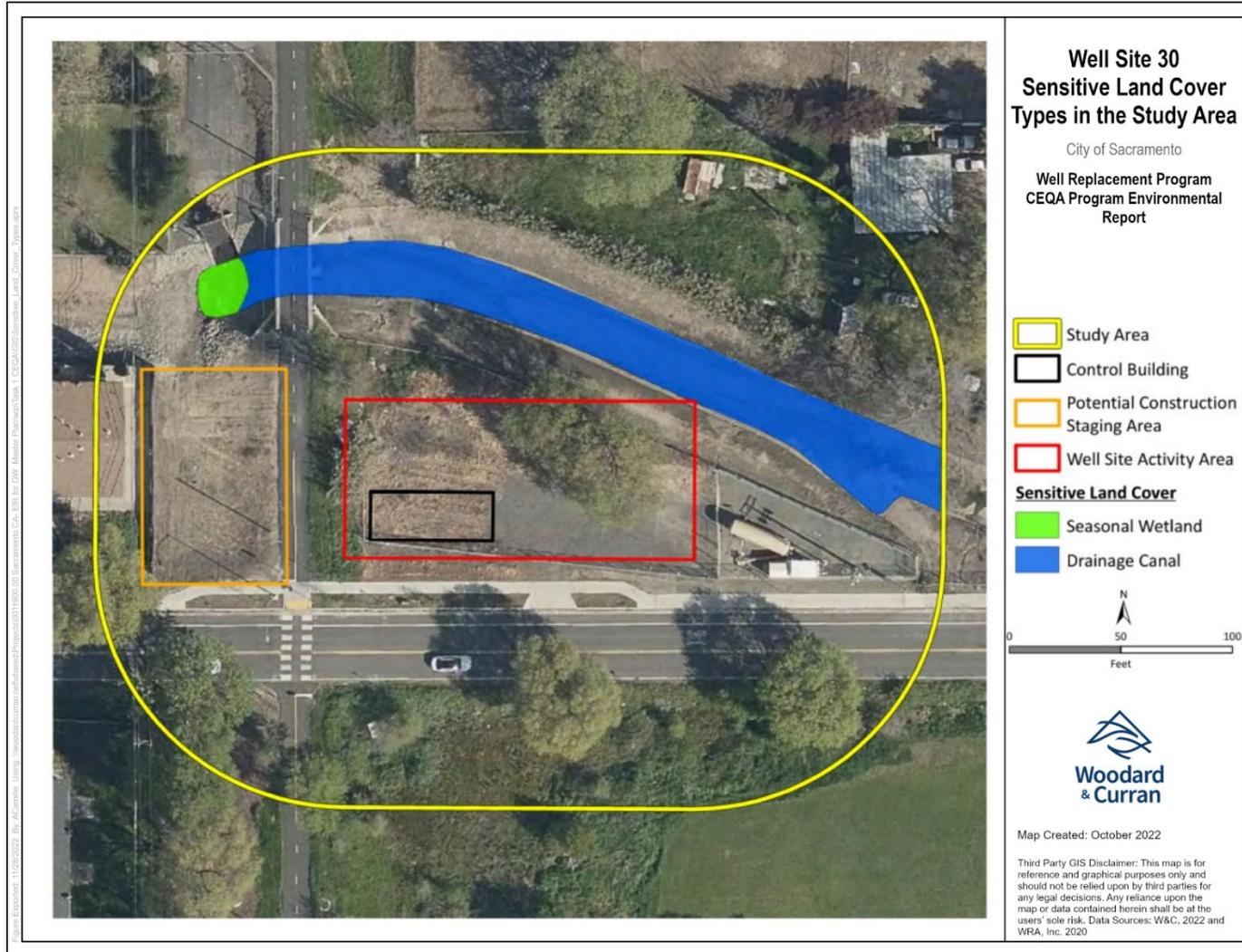
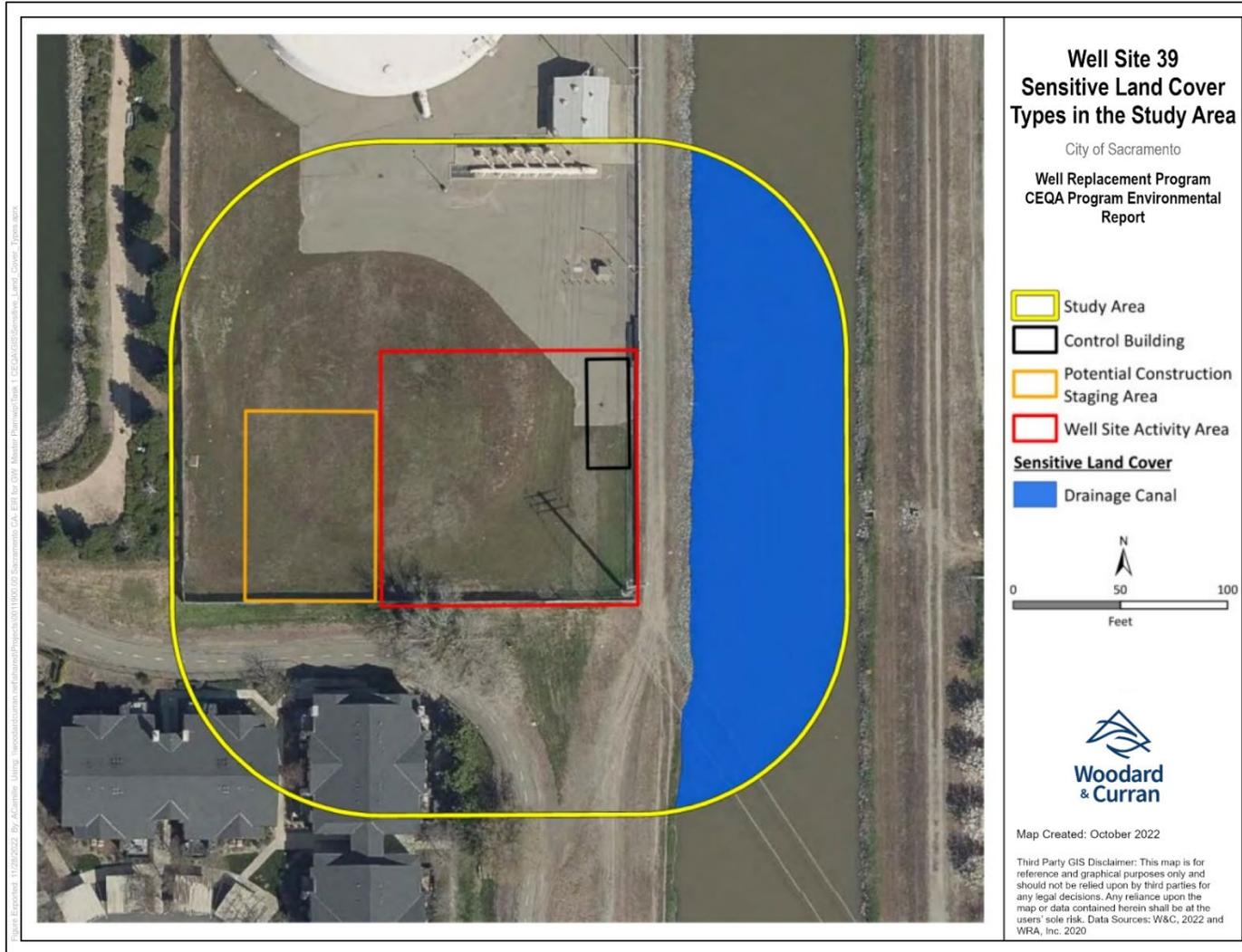


Figure 3.3-8: Sensitive Land Cover Types for Well Site 39



### Drainage Canal

Proposed well sites 24, 30, and 39 are located within 100-feet of a drainage canal; as seen in **Figure 3.3-4**, **Figure 3.3-7**, and **Figure 3.3-8**. Drainage canals are man-made channels with concrete or earthen bottoms with an obvious bed and bank that contain indicators of ordinary high water mark (OHWM). The drainage canals observed at the proposed well sites range from 10 to 30-feet wide between top-of-bank with the beds ranging from 4 to 10-feet wide between OHWMs. There was no or very little herbaceous vegetation present within the top-of-bank concrete-lined canals, while the earthen bottoms were generally herbaceous and occasionally mowed. Generally, there was a narrow band of stream-fringe vegetation present along the OHWM within the top-of-bank dominated by hydrophytic species such as tall nutsedge, western goldenrod (*Euthamia occidentalis*), and Italian ryegrass; above the OHWM, vegetation was dominated by ruderal species, including milk thistle (*Silybum maritimum*), ripgut brome, yellow star thistle (*Centaurea solstitialis*), and filaree. Some of the drainage canals had floating vegetation including water primrose (*Ludwigia* sp.) and mosquito fern (*Azolla* sp.). If present, wood shrubs and trees appeared to be planted ornamental or native trees.

### Ditch

Proposed well sites 2 and 28, as seen in **Figure 3.3-1** and **Figure 3.3-5**, have ephemeral ditches. Ephemeral ditches capture surface flow and convey water to a larger nearby conveyance. The ditch was vegetated, and observation showed no indication of flow. The top-of-bank of the ditches was approximately 5 to 6-feet wide with the OHWM approximately 2 to 3-feet wide. The hydrophytic vegetation present within the OHWM was dominated by Italian ryegrass. Weedy upland species were present above the OHWM line to the top-of-bank.

### Pond

Proposed well site 35 has an artificially created ornamental pond. The top-of-bank of the pond was dominated by maintained planted trees and non-native grassland. A small patch of cattail (*Typha* sp.) was present within the pond. This pond is not currently mapped by United States Fish and Wildlife Service (USFWS) nor California Aquatic Resource Inventory (CARI) nor is it considered a sensitive resource and is absent in 1966 aerial imagery.

## SPECIAL-STATUS SPECIES

As described further in the *Regulatory Framework* (Section 3.3.2) specific plant and wildlife species may be designated threatened or endangered and therefore are fully protected under the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). Under the California Fish and Game Code (CFG), there are specific plant and wildlife species that are designated as Fully Protected Species and Designated Rare Plant Species even if not listed under CESA or the FESA. There are also special protections for nesting birds and bats, some of which are species-specific (such as federal Bald and Golden Eagle Protection Act (BGEPA), while other

protections are for non-status species under the Migratory Bird Treaty Act (MBTA) of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513.

The CDFW has developed a list of special species as “a general term that refers to all of the taxa that the California Natural Diversity Database (CNDDDB) is interested in tracking, regardless of their legal or protection status.” Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1, 2, and 3 are also considered special-status plant species and must be considered under CEQA (Species of Special Concern [SSC]). Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare.

### SITE SURVEY METHODOLOGY

A biological resources survey for special-status plants was conducted at the proposed Project sites from June 22 through June 24, 2020 by qualified biologists. In June 2022, the biologists conducted a survey of the new location of well 38 within the E.A. Fairbairn Water Treatment Plant site. The surveys assessed Project site habitats to determine if any special-status plants have the potential to occur. The Study Area mentioned below is the area throughout which the assessment was performed, inclusive of the 38 well sites in the City of Sacramento.

The assessments also evaluated the likelihood for special-status wildlife species to be present at the proposed Project sites based on the suitability of habitat observed. The assessments for each Project site were tailored to the species that may be present. Depending on the species identified the survey evaluated anywhere from approximately 200-feet to 0.5 mile around the site for evidence of species presence in accordance with Natomas Basin Habitat Conservation Plan (NBHCP) requirements. For Project sites where NBHCP requirements are not applicable and/or potential species presence was not identified, evaluations were limited to the Project site.

Wildlife movement and migratory corridors were accounted for through the review of mapping from the California Essential Connectivity Project and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (BIOS). Local aerial imagery from 2018 was also referenced to assess the presence of local core habitat areas within or connected to the Project sites. The assessment was further refined based on observations of on-site physical and biological conditions, such as topography and vegetation, as well as on-site and off-site barriers to connectivity. Potential presence of native wildlife nurse sites including nesting sites for native bird species and colonial roosting sites for other species was evaluated as part of the site assessments.

### SPECIAL-STATUS PLANTS

Twenty-four special-status plant species have been documented in the vicinity of the Project and seven of these plants have potential to occur in the proposed Project sites. The remaining twenty species are documented from the greater vicinity and are unlikely or have no potential to occur within a proposed Project site for one or more of the following reasons:

- Hydrologic conditions (e.g., vernal pools, perennial wetlands) necessary to support the special-status plant species are not present;
- Edaphic (soil) conditions (e.g., alkaline soils) necessary to support the special-status plant species are not present;
- Associated natural communities (e.g., perennial marsh, vernal pool) necessary to support the special-status plant species are not present;
- The proposed Project site is geographically isolated by surrounding developed from the documented range of the special-status plant species;
- The historical landscape and/or habitat(s) were not suitable habitat prior to land/type conversion to support the special-status plant species;
- Land use history and contemporary management (e.g., grading, mowing, pesticide use) has degraded the localized habitat necessary to support the special-status species.

Assessment level surveys were conducted during a period sufficient to identify two of the seven special-status plant species with the potential to occur - pappose tarplant (*Centromadia parryi* ssp. *parryi*) and Pary's rough tarplant (*Centromadia parryi* ssp. *rudis*). The peak blooming periods for these two species are within the month of June and would be identifiable during the surveys if present. No special-status species were observed during WRA's June site visits. No formally listed plants from FESA, CESA, nor California Native Plant Protection Act (CNPPA) have the potential to occur at the Project sites. **Table 3.3-2** lists the remaining species with potential habitat.

**Table 3.3-2: Special-Status Plant Species**

Scientific Name	Common Name	Conservation Status	Well Sites with Habitat On or Nearby
<i>Brodiaea rosea</i> ssp. <i>vallicola</i>	Valley brodiaea	Rank 4	7, 11, 12, 13, 15, 20, 21, 24, 28, 31, 32
<i>Downingia pusilla</i>	Dwarf downingia	Rank 2B	12, 37
<i>Fritillaria agrestis</i>	stinkbells	Rank 4	7, 11, 12, 13, 15, 20, 21, 24, 28, 31, 32
<i>Navarretia eriocephala</i>	hoary navarretia	Rank 4	7, 11, 12, 13, 15, 20, 21, 24, 28, 31, 32
<i>Trifolium hydrophilum</i>	saline clover	Rank 18	7, 11, 12, 13, 15, 20, 21, 24, 28, 31, 32

### Valley brodiaea (*Brodiaea rosea* ssp. *vallicola*)

Valley brodiaea is a bulbiferous perennial forb in the brodiaea family (Themidaceae) that blooms from April through May. It typically is found in swales in valley and foothill grassland and vernal pools in the eastern side of the Sacramento Valley within 5 to 245 feet of elevation. Valley brodiaea has the potential to occur in non-native grasslands present at the Project sites.

**Dwarf downingia (*Downingia pusilla*)**

Dwarf downingia is an annual forb in the harebell family (Campanulaceae) that blooms from March to May. It typically can be found in acidic clay to clay loam mesic areas on the edge of vernal pools and lakes in valley and foothill grasslands from 3 to 1,450 feet in elevation. This species is an obligate wetland plant and is regularly known for occurring in vernal pool habitat, which does not occur at any of the Project sites. Dwarf downingia has a moderate potential to occur in depressional seasonal wetlands observed at well sites 12 and 37 because of the presence of associated species and enclosed depressional wetlands.

**Stinkbells (*Fritillaria agrestis*)**

Stinkbell is a bulbiferous perennial forb in the lily family (Liliaceae) that blooms from March to June. It typically occurs on a variety of habitat – clay soils, sometimes derived from serpentine, in grassy areas, occasionally near vernal pools, within cismontane woodland, chaparral, pinyon and juniper woodland, and woodland and foothill grasslands ranging from 30 to 5,055 feet in elevation. Stinkbells have the potential to occur in the non-native grassland present at the Project sites.

**Hoary navarretia (*Navarretia eriocephala*)**

Hoary navarretia is an annual herb in the phlox family (Polemoniaceae) that blooms from May to June. It is typically present in vernal mesic cismontane woodland and valley and foothill grasslands from 340 to 1,310 feet in elevation. Hoary navarretia is a facultative wetland plant and a vernal pool generalist. Hoary navarretia has the potential to occur in the non-native grassland present at the Project sites.

**Saline clover (*Trifolium hydrophilum*)**

Saline clover is an annual herb in the pea family (Fabaceae) that blooms from April to June. It is typically found in mesic, alkali sites in marsh, swamp, valley and foothill grassland, and vernal pool habitat that ranges in elevation from 0 to 980 feet. This species is a facultative wetland plant. Saline clover has the potential to occur in the seasonal wetlands present at the Project sites.

**SPECIAL-STATUS WILDLIFE**

No critical habitat, essential fish habitat, or wildlife corridors were identified at the proposed Project sites. Several well sites had suitable habitat for special-status wildlife species. Two well sites had potentially suitable habitat for the Valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*). Well sites containing wetlands and ditches had potential habitat for vernal pool fairy shrimp. All well sites have potential to support one or more species of nesting bird. Swainson's hawk and burrowing owls also have the potential to nest at the well sites and vicinity. Where trees are present and large enough to support maternity roosts for bats, well sites have potential to support day roosting bats.

Of the special-status wildlife species documented in the vicinity of the Project sites, most are excluded due to the lack of habitat features and the position of the well sites in an urban environment. Features required to support special-status wildlife species that are not found within the Project vicinity include:

- Suitable perennial aquatic habitat (e.g., streams, rivers, ponds) with suitable surrounding upland habitat (e.g., areas with animal burrows)
- Tidal Marsh areas
- Caves, mine shafts, or abandoned buildings
- Extensive grasslands
- Cut banks, riparian jungles, extensive emergent vegetation to support nesting

The absence of these habitat features eliminates critical components for the survival or movement of most special-status species found within the Project vicinity.

As shown in **Table 3.3-3**, six special-status wildlife species have the potential to occur in the immediate vicinity of or in portions of the Study Area: VELB, vernal pool fairy shrimp (VPFS; *Branchinecta lynchi*), white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), burrowing owl (*Athene cunicularia*), and Swainson's hawk (SWHA; *Buteo swainsonii*).

**Table 3.3-3: Special-Status Wildlife Species**

Scientific Name	Common Name	Formally or Currently Listed	Conservation Status	Well Sites with Habitat On or Nearby
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	Formally Listed	Federally Threatened	Well sites 2, 12, 13, 28, 29, 30, 37 have potential wetlands or other features onsite that may be suitable for VPFS.
<i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle	Formally Listed	Federally Threatened	Well sites 38 and 24 have <i>Sambucus</i> , the host plant for VELB.
<i>Buteo swainsonii</i>	Swainson's Hawk	Formally Listed	State Threatened	Suitable habitat is present within some sites and is located within 0.25 miles of all sites.
<i>Athene cunicularia</i>	burrowing owl	Other Special-status	Species of Special Concern	This species has numerous documented occurrences in the vicinity of the Study Area and some sites contain burrows.

Scientific Name	Common Name	Formally or Currently Listed	Conservation Status	Well Sites with Habitat On or Nearby
<i>Lanius ludovicianus</i>	loggerhead shrike	Other Special-status	Species of Special Concern	This species has been documented in the vicinity of the Study Area and may nest there.
<i>Elanus leucurus</i>	white-tailed kite	Other Special-status	California Fully Protected Species	This species has been documented in the vicinity and may nest in trees and shrubs if they are available.

### Vernal pool fairy shrimp (*Branchinecta lynchi*)

Vernal pool fairy shrimp is a federally threatened species that has no potential or is unlikely to be present at most well sites. There is moderate potential for vernal pool fairy shrimp to occur at well sites 2, 12, 13, 28, 29, 30, and 37. This species are widespread but not abundant. Populations are unknown from Shasta County through most of the Central Valley down to Tulare County. Vernal pool fairy shrimp occupy a variety of different vernal pool habitats from small, clear sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Most of the well sites that have moderate potential to support vernal pool fairy shrimp do not have connectivity to documented occurrences of the species; however, their presence cannot be ruled out without additional study.

### Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The valley elderberry longhorn beetle is a federally threatened species that is unlikely or has no potential to occur at the proposed well sites except for well sites 24 and 38. This beetle is found throughout the Central Valley in elderberry (*Sambucus* sp.) shrubs, on which the beetle is completely dependent during its larval development, and to a lesser degree, adult feeding. Typical habitat is characterized by large stands of mature elderberry shrubs in riparian or floodplain areas. Well sites 24 and 38 support *Sambucus* but neither of these plants were found to contain evidence of the beetle. However, at sites where *Sambucus* is present, the valley elderberry longhorn beetle may be present.

### Swainson's hawk (*Buteo swainsoni*)

Swainson's hawk is a state threatened species with moderate potential to occur at all well sites. This species is a summer resident and migrant in California's Central Valley and scattered portions of interior Southern California. Swainson's hawk typically uses nesting areas that include edges of narrow bands of riparian vegetation, isolated patches of oak woodland, lone trees, and planted and natural trees associated with roads, farmyards, and sometimes adjacent residential areas. The species forages in open habitats including grasslands, open woodlands, and agricultural areas.

Swainson's hawk is not uncommon in the lower Sacramento Valley in areas where nest trees and foraging habitat are present.

The well sites have trees within or adjacent to the site that could support nesting and documented occurrences are present near several of the well sites and in the Sacramento area. All well sites have potentially suitable nesting trees within 0.25 miles of the site; however, many of these well sites have reduced potential to support the Swainson's hawk because of the sites' urban setting and other factors. All proposed Project sites are within foraging distance of suitable feeding areas, although the foraging quality in most of the Study Area is diminished due to the majority of the area being developed and managed. There are a few well sites that may be occasionally visited by foraging Swainson's hawk.

### **Burrowing owl (*Athene cunicularia*)**

The burrowing owl is a CDFW species of special concern that is unlikely to be present at most well sites and has moderate potential to be present within the vicinity of the proposed Project sites. The burrowing owl is a year-round resident and winter visitor in California's lowlands, where it inhabits open areas with sparse or non-existing tree or shrub canopies. Typical habitat includes annual or perennial grassland as well as human-modified areas such as agricultural lands and airports. Burrowing owls are typically found in close association with California ground squirrels (*Otospermophilus beecheyi*) since owls are dependent on burrowing mammals to provide burrows that are used for shelter and nesting. Pipes and debris piles may also be occupied in place of burrows.

No burrowing owls were observed. Burrow or burrow analogues were seen at well sites 7, 13, and 16. Well sites 19, 20, and 28 have small culverts near potential work areas that could be used by burrowing owls. Additional structures that may support burrowing owls are located outside of the well sites but within the Project vicinity.

### **Loggerhead shrike (*Lanius ludovicianus*)**

The loggerhead shrike is a CDFW species of special concern with unlikely or moderate potential to be present in the Study Area. The loggerhead shrike is a year-round resident and winter visitor in California lowlands and foothills. This species' typical habitat is open country with short vegetation and scattered trees, shrub, fences, utility lines, and/or other perches. Loggerhead shrikes are songbirds as well as predators that forage on a variety of invertebrates and small vertebrates. Loggerhead shrikes use sharp substrate such as thorns, spikes on vegetation, or barbed wire fences to impale captured prey for storage purposes. This species also nests in trees and large shrubs and place their nests three to ten feet off the ground.

The majority of the Study Area provides only marginal habitat for the loggerhead shrike to nest and forage. However, potentially suitable habitat is present and the species has been documented in the region, therefore the species has the potential to occur and nest near well sites.

### **Giant garter snake (GGS; *Thamnophis gigas*)**

The giant garter snake is a federally and state threatened species as well as a NBHCP species with the unlikely potential to occur at well sites 19 and 39 and no potential to occur at the remaining well sites. The giant garter snake is an endemic species of snake that is only found in the Sacramento and San Joaquin Valleys. This species prefers freshwater marshes and low gradient streams but has adapted to drainage channels and irrigation ditches. The giant garter snake inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley.

The giant garter snake is assessed as unlikely to occur but is discussed here because of its listed status and its inclusion in the NBHCP. Within the Study Area, there are no sites that have suitable habitat that have connectivity to populations are presumed extant. Well site 19 is located near an occurrence that is presumed to be extant but there is no suitable aquatic habitat on site and the terrestrial areas lack refugia. Rip-rap and aquatic habitat adjacent to the site may potentially support the giant garner snake. Well site 19 is within 200 feet of potentially occupied habitat and is within the NBHCP area.

Well site 39 has an occurrence of the giant garter snake within it, but the area is developed, lacking suitable habitat, and the CNDDDB description of the occurrence is “possibly extirpated”, as are the majority of the occurrences in the Project vicinity.

The remainder of the Study Area either does not contain suitable habitat to support this species and/or is separated from other suitable habitat by urban development, roadways, and disked fields. There is no suitable habitat for this species within 200 feet of the majority of the Study Area. Additionally, giant garter snake occurrences that are near well sites in the rest of the NBHCP are considered possibly extirpated, including the occurrences in closest proximity to the Study Area. Land use changes in the vicinity have eliminated suitable habitat.

### **NBHCP SPECIES OUTSIDE OF THE STUDY AREA**

The following buffers were evaluated for species covered under the NBHCP (well sites 15, 19, 20, 23, and 39) except when assessment would require entering properties where access was not granted:

- A 250-foot area surrounding the Study Areas within the NBHCP area was evaluated to determine whether any vernal pools, swales, or other seasonal wetlands capable of supporting vernal pool associated species such as vernal pool fairy shrimp (*Branchinecta lynchi*), midvalley fairy shrimp (*B. mesovallensis*), vernal pool tadpole shrimp (*Lepidurus packardii*), western spadefoot toad (*Spea hammondi*), and California tiger salamander (*Ambystoma californiense*) were present. The 250-foot surrounding areas are either developed, have been disked or otherwise disturbed in such a way that no wetland features that would support vernal pool-associated species would be present.

- No Elderberry (*Sambucus* spp.) shrubs, the host plant for valley elderberry longhorn beetle, were observed at well sites subject to the NBHCP. However, well site 23 is within 1000 feet of riparian habitat that could support elderberry.
- No tricolor blackbird (*Agelaius tricolor*) nesting habitat was observed within 500 feet of the Study Area within the NBHCP area.
- No Aleutian Canada geese (*Branta canadensis leucopareia*) were observed within the Study Area within the NBHCP area.
- No white-faced ibis (*Plegadis chihi*) nesting habitat was observed within 0.25 mile of the Study Area within the NBHCP area.
- Loggerhead shrike (*Lanius ludovicianus*) nesting habitat was observed within 100 feet of the Study Area within the NBHCP area.
- No bank swallow (*Riparia riparia*) nesting habitat was observed within 250 feet of the Study Area within the NBHCP area.

### WILDLIFE CORRIDORS AND NATIVE WILDLIFE NURSEY SITES

The Study Area is not within a designated wildlife corridor. The Project is located within a highly urbanized landscape. While common wildlife species presumably utilize the Study Area to some degree for movement at a local scale, the Study Area itself does not provide corridor functions for most species and the limited scale of each well site further reduces the potential for these areas to play a significant role for wildlife transit. There is no Essential Fish Habitat or designated Critical Habitat within the Study Area. Well site 39 has nearby nesting herons and egrets. Heron and egret nest sites are protected from disturbance that could result in nest failure or abandonment while active.

### 3.3.2 REGULATORY FRAMEWORK

This section describes laws and regulations at the federal, state, and local level that may apply to the Project.

#### **3.3.2.1 Federal Policies and Regulations**

##### FEDERAL ENDANGERED SPECIES ACT OF 1973

The FESA (United States Code [USC], Title 16, Section 1531 through 1543) and subsequent provides legal protection for endangered and threatened wildlife and plant species. FESA was implemented by USFWS and NMFS and maintains a list of endangered and threatened species. Species may also be considered proposed or candidate species if they are being considered for listing; however, these species are not protected until they are formally listed as threatened or endangered. Authorization must be obtained from USFWS or NMS prior to harassing, pursuing, hunting,

shooting, wounding, harming, killing, trapping, capturing, collecting, or attempting to engage in any such conduct with any listed species. This also includes any disruptions to normal behavior patterns such as from noise or visual disruptions or impacts to habitat. Federal-listed plant species are only protected from these actions on federal land. Actions that may result in these consequences, as known as “take”, must obtain a permit under FESA Section 10, or through interagency consultation as described in FESA Section 7.

The FESA also provides designation of critical habitat for areas that contain specific physical or biological features that are essential to the protection and conservation of the species. Protection of designated critical habitat apply only to actions funded, permitted, or carried out by federal agencies.

### MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) (16 USC 703 through 711) affirms, or implements, a commitment by the United States to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. Originally passed in 1918, the primary motivation for the international negotiations was to stop the “indiscriminate slaughter” of migratory birds by market hunters and others. The MBTA protects over 800 species of birds (including their parts, eggs, and nests) from killing, hunting, pursuing, capturing, selling, and shipping unless expressly authorized or permitted.

### CLEAN WATER ACT

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. In California this authority is designated to the State’s Regional Water Quality Control Boards (RWQCB), who administer the certification program (further described below under 3.3.2.2 *State Policies and Regulations*). Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by United States Army Corps of Engineers (USACE) that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 Code of Federal Regulations 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

### WETLANDS AND OTHER WATERS OF THE UNITED STATES

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory

agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as that portion that falls within the limits of the Ordinary High Water Mark. Typically, the Ordinary High Water mark corresponds to the 2-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for USACE to classify a site as a wetland.

### **3.3.2.2 State Policies and Regulations**

#### **CALIFORNIA ENDANGERED SPECIES ACT**

The CESA (CFGC, Section 2050 et seq.) provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike FESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to FESA and is prohibited for both listed and candidate species. Take authorization may be obtained from the CDFW under the CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

#### **CALIFORNIA FULLY PROTECTED SPECIES**

CFGC Sections 3511, 4700, 5050, and 5515 outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the “take” of any fully protected species, except under certain circumstances, such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of the CDFW to maintain viable populations of all native species. Toward that end, the CDFW has designated certain vertebrate species as SSC, because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

## CALIFORNIA NATIVE PLANT PROTECTION ACT

The Native Plant Protection Act of 1977 directed the CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the Fish and Game Code. To align with federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the act as threatened species but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in the CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and the project proponent.

## CALIFORNIA ENVIRONMENTAL QUALITY ACT

California Environmental Quality Act (CEQA) Guidelines Appendix G Checklist requires an evaluation of special status species. CEQA Guidelines Section 15380(b) defines endangered species or subspecies as species in the wild whose reproduction and survival are in immediate jeopardy due to one or more causes, including such factors as predation, competition, disease, overexploitation, loss of habitat, or change in habitat. A rare animal or plant is defined as a species that is not currently threatened with extinction; however, the species exists in such small numbers throughout all or a significant portion of its habitat that it may become endangered if its environment worsens or is likely to become endangered or threatened in the foreseeable future in terms of the federal Endangered Species Act.

In addition, CDFW developed a list of "Special Species" as "a general term that refers to all of the taxa the CNDDDB is interested in tracking, regardless of their legal or protection status." This list includes species protected under FESA, CESA, and other Fish and Game provisions, as well as other organizations such as the Audubon Water List Species. In addition, CDFW has concluded that plant species on List 1 and 2 as well as some List 3 species are covered by CEQA Guidelines Section 15380(c).

Additionally, the CEQA Guidelines Appendix G Checklist requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or the US Fish and Wildlife Service."

## CALIFORNIA WETLAND DEFINITION

California has adopted the Cowardin et al. (1979) definition of wetlands where wetlands must have one or more of the following three classification attributes: (1) at least periodically, the land supports predominantly hydrophytes (at least 50 percent of the aerial vegetative cover); (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season for each year.

For normal circumstances, the federal definition of wetlands requires all three wetland classification attributes to be met, whereas the Cowardin definition requires the presence of at least one of these attributes. Therefore, identification of wetlands by state agencies consists of the union of all areas that are periodically inundated or saturated or in which at least seasonal dominance by hydrophytes may be documented or in which hydric soils are present.

## SECTION 1602 CALIFORNIA FISH AND GAME CODE

Section 1600 of the California Fish and Game code describes the requirements for lake and streambed alternations within the State. 1602(a) states, "An entity shall not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake..." without previously notifying CDFW and meeting the conditions of the subsequent subsections.

## SECTION 401 CLEAN WATER ACT

Under Section 401 of the CWA, the local RWQCB, Central Valley RWQCB, must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. Compensatory mitigation for impacts to wetlands and/or waters of the state is required.

## PORTER-COLOGNE WATER QUALITY CONTROL ACT

The RWQCB has jurisdiction over waters deemed isolated or not subject to Section 404 jurisdiction under a recent Supreme Court decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state, and prospective dischargers are required to obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

### **3.3.2.3 Local Policies and Regulations**

#### CITY OF SACRAMENTO 2035 GENERAL PLAN

The City has identified the following goals and policies in the City's 2035 General Plan:

**GOAL ER 2.1: Natural and Open Space Protection.** Protect and enhance open space, natural areas, and significant wildlife and vegetation in the city as integral parts of a sustainable environment within a larger regional ecosystem.

- **Policy ER 2.1.1: Resource Preservation.** The City shall encourage new development to preserve on-site natural elements that contribute to the community's native plant and wildlife species value and to its aesthetic character.

- **Policy ER 2.1.6: Wetland Protection.** The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetlands, to the extent feasible. If not feasible, the mitigation of all adverse impacts on wetland resources shall be required in compliance with State and Federal regulations protecting wetland resources, and if applicable, threatened or endangered species. Additionally, the City shall require either on- or off-site permanent preservation of an equivalent amount of wetland habitat to ensure no-net-loss of value and/or function.
- **Policy ER 2.1.7: Annual Grasslands.** The City shall preserve and protect native grasslands and vernal pools that provide habitat for rare and endangered species. If not feasible, the mitigation of all adverse impacts on annual grasslands shall comply with State and Federal regulations protecting foraging habitat for those species known to utilize this habitat.
- **Policy ER 2.1.8: Oak Woodlands.** The City shall preserve and protect oak woodlands, heritage oaks, and/or significant stands of oak trees in the city that provide habitat for common native, and special-status wildlife species, and shall address all adverse impacts on oak woodlands in accordance with the City's Heritage Tree Ordinance.
- **Policy ER 2.1.9: Wildlife Corridors.** The City shall preserve, protect, and avoid impacts to natural, undisturbed habitats that provides movement corridors for sensitive wildlife species. If corridors are adversely affected, damaged habitat shall, be replaced with habitat of equivalent value or enhanced to enable the continued movement of species.
- **Policy ER 2.1.10: Habitat Assessments.** The City shall consider the potential impact on sensitive plants and wildlife for each project requiring discretionary approval. If site conditions are such that potential habitat for sensitive plant and/or wildlife species may be present, the City shall require habitat assessments, prepared by a qualified biologist, for sensitive plant and wildlife species. If the habitat assessment determines that suitable habitat for sensitive plant and/or wildlife species is present, then either (1) protocol-level surveys shall be conducted (where survey protocol has been established by a resource agency), or, in the absence of established survey protocol, a focused survey shall be conducted consistent with industry-recognized best practices; or (2) suitable habitat and presence of the species shall be assumed to occur within all potential habitat locations identified on the project site. Survey Reports shall be prepared and submitted to the City and CDFW or USFWS (depending on the species) for further consultation and development of avoidance and/or mitigation measures consistent with state and federal law.
- **Policy ER 2.1.11: Agency Coordination.** The City shall coordinate with State and Federal resource agencies (e.g., CDFW, USACE, and USFWS) to protect areas containing rare or endangered species of plants and animals.
- **Policy ER 2.1.12: Natomas Basin Habitat Conservation Plan.** The City shall continue to participate in and support the policies of the Natomas Basin Habitat Conservation Plan for the protection of biological resources in the Natomas Basin.

- **Policy ER 2.1.16: Wetland Protection.** The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetlands, to the extent feasible. If not feasible, the mitigation of all adverse impacts on wetland resources shall be required in compliance with State and Federal regulations protecting wetland resources, and if applicable, threatened or endangered species. Additionally, the City shall require either on- or off-site permanent preservation of an equivalent amount of wetland habitat to ensure no net-loss of value and/or function.

**GOAL ER 3.1: Urban Forest.** Manage the city's urban forest as an environmental, economic, and aesthetic resource to improve Sacramento residents' quality of life.

- **Policy ER 3.1.3: Trees of Significance.** The City shall require the retention of City trees and Private Protected Trees by promoting stewardship of such trees and ensuring that the design of development projects provides for the retention of these trees wherever possible. Where tree removal cannot be avoided, the City shall require compliance with the Tree Preservation Ordinance.

## CITY OF SACRAMENTO CITY CODE

**Section 12.56.040: The City of Sacramento Tree Ordinance – Removal of City Trees.** The City of Sacramento Tree Ordinance requires approval for the regulated work to City Trees for public projects (Section 12.56.040). Regulated work includes planting, removal, or work which may adversely impact the health of trees on City property. The Ordinance defines a "City Tree" as:

Any tree the trunk of which, when measured at 4.5 feet above ground is partially or completely located in a city park, or on real property the city owns..."

If a public project may potentially remove City Trees, and avoidance is not feasible, the city project manager shall provide written justification to the director of the need to remove City Trees for the public project. City Trees that have a diameter at standard height (DSH) of 4 inches or more require approval of the director. If the DSH is less than 4 inches, the tree shall be removed as provided in Section 12.56.030.C.

### 3.3.3 IMPACT ANALYSIS

#### 3.3.3.1 Methodology for Analysis

Impacts on biological resources are identified and evaluated based on relevant *CEQA Guidelines* and local standards, policies, and guidelines; on the likelihood that special-status species, sensitive habitats, wetlands and waters, and wildlife corridors are present within the Study Area; and on the likely effects that Project construction and operation might have on these resources. Special-status resources that have no or low potential to occur in the study area are not considered in the impact analysis.

This section analyzes potential Project impacts on biological resources from the construction phase (short-term) and the operations phase (long-term). The analysis addresses potential direct, indirect, and cumulative impacts of the Project on special-status species and other protected biological resources, wetlands and other waters, and potential Project conflicts with state, regional and/or local policies. Direct impacts are those resulting from the Project that occur at the same time and place. Indirect impacts are caused by the Project but can occur later in time or farther removed in distance while still reasonably foreseeable and related to the Project. Impact analyses typically characterize effects on biological resources as temporary or permanent, with a permanent impact referring to areas that are developed or otherwise precluded from restoration to a pre-Project state.

For the purposes of this Draft EIR, the word “substantial” as used in the significance criteria below is defined by the following three principal components:

- i. Magnitude and duration of the impact
- ii. Uniqueness of the affected resource (rarity)
- iii. Susceptibility of the affected resource to disturbance

The approaches to the analyses of impacts related to construction and operation of the Project are described below under their respective headings.

### **3.3.3.2 Thresholds of Significance**

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018 an impact on biological resources would be considered significant if the Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

### 3.3.3.3 Criteria Requiring No Further Evaluation

The Initial Study determined that the Project would not have significant impacts associated with the following criteria:

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.** A portion of the City is located within the Natomas Basin Habitat Conservation Plan. Five of the Proposed sites (well sites 15, 19, 20, 23, and 39) are located within the NBHCP area. The City is a signatory to the NBHCP. As such, the City will abide by provisions of the NBHCP for any impacts that may occur to covered biological resources within the required radius of the well site areas and coordinate with the City's New Growth Manager (City's HCP Designee). Therefore, no conflicts with the NBHCP would be expected and no impact would occur.

### 3.3.3.4 Impacts and Mitigation Measures

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<b>Impact BIO-1</b>	<b>Substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service.</b>
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#### IMPACT BIO-1 ANALYSIS

##### CONSTRUCTION IMPACTS

As described above, the habitats of the Project sites are characteristic of disturbed and urban habitat and are dominated by planted landscaping and other non-native species. Therefore, very few of the well sites support rare or special-status species.

##### **Special Status Plants**

Seven of the identified 23 special-status plants have the potential to occur in the Study Area. The remaining species documented from the greater vicinity are unlikely or have no potential to occur. No special-status species were observed during the June site visit.

The special status plant species that could occur in grasslands are valley brodiaea (*Brodiaea rosea* ssp. *Vallicola*), stinkbells (*Fritillaria agrestis*), and hoary navarretia (*Navarretia eriocephala*). These species have their peak blooming periods in April and May and could not be identified during the June 2020 site visit. Two species, dwarf downingia (*Downingia pulsilla*) and saline clover (*Trifolium hydrophilum*), occur in wetlands of some well site areas; however, the well facilities would be sited to avoid wetlands, thus no impacts to these two species would be expected.

**Mitigation Measure BIO-1** would be implemented to reduce potential impacts to special-status plant populations. Surveys would be completed prior to construction to avoid observed populations or individual plant species found within each well site, to the extent practical and if avoidance is not possible habitat for species would be restored and protected. Thus, construction of the proposed Project would have less than a significant impact on special-status plants.

### Special Status Wildlife

No federal designated critical habitat was identified as occurring in the Study Area. There are six special-status wildlife species have potential to occur in the immediate vicinity of or in portions of the Study Area.

Swainson's hawk (*Buteo swainsonii*), a CESA-listed raptor, regularly nests within the vicinity of the Project area and could use the proposed well sites as potential foraging habitat. No anticipated loss of habitat is anticipated as a result of the proposed Project; however, during construction some areas may be temporarily disturbed and Swainson's hawk may avoid the active construction areas at times. No nesting trees for Swainson's hawk would be removed for the proposed Project. If Swainson's hawk were to nest near a proposed well site, the construction activities could be sufficient to disturb the active nest to the extent that the active nest would be abandoned, which is considered "take" under CESA. Implementation of **Mitigation Measures BIO-2a** and **BIO-2b** would limit potential impacts to Swainson's hawk nests prior to the start of construction by timing construction activities to occur outside of the nesting season if feasible to completely avoid any impact and if not feasible then by conducting preconstruction surveys to identify active nests and developing an avoidance strategy with CDFW if nests are present within the Project work zone. By implementing measures to avoid Swainson's hawk nests, the Project would not result in take and would not significantly impact the sensitive-status species. Therefore, construction of the proposed Project would have a less than significant impact on Swainson's hawks.

Burrowing owl (*Athene cunicularia*) is CDFW Species of Special Concern that nests in ground burrow-like structures. Burrows are present at several proposed well sites and could be used as potential habitat for burrowing owl. To limit the potential impact to potential burrowing owl, **Mitigation Measure BIO-3** requires a pre-construction survey and avoidance measures to avoid the direct removal or destruction of active nests or occupied habitat. Therefore, construction of the proposed Project would have a less than significant impact on burrowing owls.

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), a federally-threatened species, lives in elderberry (*Sambucus*) bushes. The proposed Project may potentially impact VELB by removing its host plant. **Mitigation Measure BIO-4** requires a survey for VELB prior to construction and requires a 20-foot buffers of construction activities from the plants if VELB are found to limit the significance of potential impacts. Therefore, construction of the proposed Project would have a less than significant impact on VELBs.

Vernal pool fairy shrimp (*Branchinecta lynchi*) is a broad-ranging federally-listed vernal pool crustacean that lives in wetlands, vernal pools, and man-made features such as ditches. Vernal pool

fairy shrimp can occupy pools of water for 3-4 weeks. Seasonal wetlands were found on well sites 2, 12, 13, 28, 29, 30, and 37, thus, if vernal pool fairy shrimp were present in those areas a potentially significant impact could occur. Implementation of **Mitigation Measures BIO-5a** and **BIO-5b** is required to limit impacts to vernal pool fairy shrimp by avoiding construction in aquatic features and, if construction must occur within an aquatic feature, restricting construction to the dry season or conducting surveys to document the absence of Vernal Pool Fairy Shrimp would be required prior to the start of construction. Therefore, construction of the proposed Project would have a less than significant impact on vernal pool fairy shrimp.

There are many trees within and surrounding the proposed well sites, which could be used as potential nesting sites and habitat for the white-tailed kite (*Elanus leucurus*), loggerhead shrike (*Lanius ludovicianus*), and common nesting birds, protected under the Migratory Bird Treaty Act. Construction activities could result in the direct removal or destruction of active nests and their habitats through noise and the removal of vegetation. To limit impacts, **Mitigation Measure BIO-6** requires a pre-construction survey for active bird nests prior to the start of construction and requires a work exclusion zone or coordination with CDFW for any identified active bird nests until nesting is complete. Therefore, construction of the proposed Project would have a less than significant impact on white-tailed kite, loggerhead shrike, and common nesting birds.

Well sites also have potential to support day roosting bats where trees are present, however trees in the well sites are not large enough to support maternity roosts for bats. No buildings or trees that would support maternity roosts would be removed or demolished as part of the proposed Project. Therefore, construction of the proposed Project would have a less than significant impact on roosting bats.

Existing well sites are already disturbed areas with existing facilities and regular operation; therefore, deconstruction activities would be less likely to impact special-status plant or wildlife species. **Mitigation Measure BIO-6** would require surveys for nesting birds and avoidance of construction adjacent to nesting birds or coordination with CDFW to identify appropriate avoidance and minimization measures until nesting is complete.

During well drilling and equipping, the potential for displacement of insects from below ground or above ground is very limited due to the localized nature, small footprint, and disturbed nature of the majority of the Project sites. Any trees to be removed or trimmed would be surveyed for bird nests, and if any insect colonies are identified, they would be removed in accordance with City requirements. Construction site best management practices would be implemented during construction activities to properly contain soil, drilling mud and construction wastes, including implementation of daily construction site maintenance. Therefore, construction activities would not be expected to displace insects that could create nuisance conditions. Impacts would be less than significant.

Therefore, construction related impacts to special status species are less than significant with implementation of **Mitigation Measures BIO-1** through **BIO-6**.

### OPERATION IMPACTS

Once Project site construction is completed, operational conditions would be similar to those at existing well sites or in the case of existing wells that have reached the end of their useful life, operational activities would be limited making the potential for impact to sensitive status species unlikely. Unpaved areas disturbed during construction and deconstruction due to equipment staging or use would have been restored to pre-construction conditions to close out construction and operations would have limited effects on the surrounding environment. Typical operation equipment would be secured, limiting the potential for species to access equipment. Chemicals and other materials used for operations would be contained and regulated by Hazardous Materials Plans, Clean Water Act, and worker safety protections. Operational site visits would not create more disturbances to the potential roosting bats, nesting birds, or special-status wildlife species than would naturally occur prior to Project construction. Activities during operations would include walking and driving with motorized vehicles on paved paths and roads which would not disturb special-status plant species or adjacent trees or other vegetation. Thus, operational activities would be less than significant.

### IMPACT BIO-1 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure BIO-1, BIO-2a, BIO-2b, BIO-3, BIO-4, BIO-5a, BIO-5b, and BIO-6 (see Section 3.3.3.5)

**Significance after Mitigation:** Less than Significant after Mitigation Incorporated

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<b>Impact BIO-2</b>	<b>Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.</b>
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### IMPACT BIO-2 ANALYSIS

### CONSTRUCTION IMPACTS

Seven land cover types were observed within the Study Area of the well sites: developed, landscaped, non-native grassland, seasonal wetlands, drainage canals, ditch, and artificial pond. Sensitive land cover types that were found to occur within well site areas are illustrated in **Figure 3.3-1** through **Figure 3.3-8**. The non-sensitive land cover types in the well site areas include non-native grasslands, landscaped and developed areas, and artificial pond, while the sensitive communities include the streams (drainage canals and ditches) and seasonal wetlands.

Two sensitive natural communities: seasonal wetlands and creeping ryegrass flat were identified at well sites 2, 12, 13, 28, 29, 30, and 37. Project activities may directly or indirectly impact seasonal wetlands. Seasonal wetlands are regulated by: 1) the RWQCB under the CWA Section 401 and the Porter-Cologne Water Quality Control Act; 2), the USACE under the CWA Section 404; and 3) CDFW through the CFGC Section 1602. The sensitive communities at well sites 12, 13, 28, 29, 30, and 37 do not display direct connectivity to intermittent or perennial streams, indicating that they likely would not be considered jurisdictional wetlands by CDFW, RWQCB, or USACE. However, if these communities were to be jurisdictional, potential impacts could be significant. Therefore, **Mitigation Measures BIO-7a, BIO-7b, and BIO-5a** would be implemented to complete delineation of these resources, guide avoidance, and provide specific procedures such as obtaining permits and purchasing compensatory mitigation to reduce potential impacts to sensitive natural communities. Creeping ryegrass flats are only present at well site 28; this habitat is considered sensitive by CDFW. To reduce impacts to the creeping ryegrass flat, **Mitigation Measure BIO-8** would be implemented by creating an exclusionary buffer surrounding the habitat to avoid impacts. With implementation of these mitigation measures, impacts would be reduced or avoided entirely. Therefore, construction of the proposed Project would have a less than significant impact.

### OPERATION IMPACTS

Once construction is complete, operational activities would occur on constructed facilities and would have minimal disturbance to the surrounding area. The seasonal wetlands and creeping ryegrass flats present at well sites 2, 12, 13, 28, 29, 30, and 37 would be avoided and would not be significantly disturbed during operational activities, which would avoid any direct or indirect impacts to the sensitive natural communities. Thus, operation of the proposed Project would have a less than significant impact.

### IMPACT BIO-2 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measures BIO-5a, BIO-7a, BIO-7b, and BIO-8 (see Section 3.3.3.5)

**Significance after Mitigation:** Less than Significant after Mitigation Incorporated

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**Impact BIO-3      Substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool,**

**coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

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## IMPACT BIO-3 ANALYSIS

### CONSTRUCTION IMPACTS

Direct impacts to potential state or federally protected wetlands are avoided due to the preferential siting of Project activities in areas that do not contain these features. Potential for indirect impacts exist at well sites 2, 24, 28, and 30, as areas of proposed activities and staging are located within 100-feet of a drainage canal or ditch and no levee is present between the feature and the activity areas. Furthermore, one seasonal wetland located at well site 2 would be potentially impacted by well site activities, and due to its location adjacent to, and directly connected to a potential jurisdictional drainage canal, this feature would likely be a jurisdictional Waters of the US regulated by the USACE. To reduce potential impacts, **Mitigation Measures BIO-7a, BIO-7b, and BIO-5a** would be implemented, requiring construction to occur during dry season, and specifying the needs for a wetland delineation, and the avoidance of any wetlands within the proposed Project sites. Thus, construction of the proposed Project would have a less than significant impact.

### OPERATION IMPACTS

Once construction is complete, operational well activities would be contained to areas within the Project sites where the well facilities exist, and facilities would not impact jurisdictional wetland and non-wetland Waters of the US

Operation of replacement wells would involve pumping groundwater at depths ranging from 255 feet below ground surface (bgs) up to 1,200 feet bgs, as noted in **Table 2.6-1**, with the majority of wells screened between 350 and 500 feet bgs. These replacement well depths are similar to the depths of existing wells as noted in **Table 2.5-1**. At these depths, there is minimal potential for interconnection to surface waters (a discussion of interconnected surface waters [ISWs] is provided in *Section 3.9 Hydrology and Water Quality*). Thus, groundwater dependent ecosystems (GDEs) which rely on groundwater for their existence (i.e., deep-rooted plant communities [phreatophytes] and ecological communities around springs, seeps, wetlands, streams and lakes), would not be affected. The average depth of California phreatophytes is about 30 feet bgs (SGASA, et., al, 2021), although there a few tree species with maximum root depths that exceed the 30-foot average, such as valley oak (*Quercus lobata*) which can have rooting depths up to 80 feet.

Well sites 2, 7, and 32 are located within Granite Park and William Chorley Park that were fully or partially identified as likely GDEs for the South American Subbasin (NDGSA et al., 2021). None of the proposed Project sites in the North American Subbasin are located within or near GDEs (SGAGSA et al., 2021). See also discussion on GDEs in *Section 3.9.1.2 Hydrology and Water Quality*. As noted above, all proposed replacement wells, similar to the existing wells, would be substantially deeper than 30 feet bgs and would typically draw from portions of the aquifers over 300 feet deep, and thus, would not impact GDEs that draw water from the upper aquifer. The groundwater

modeling results for the Project (Appendix E) found that these proposed wells depths are deeper than the minimum thresholds established at the Groundwater Sustainability Plan (GSP) representative monitoring well locations in the vicinity of the proposed Project wells. Per the findings of the groundwater modeling for the Project (Appendix E), operation of the Project under the GSPs for the North American Subbasin and South American Subbasin would result in sustained groundwater elevations that are above the sustainable management criteria and thus, avoid undesirable results, including impacts to GDEs. Additionally, the Project is expected to provide a net positive benefit to streams (ISWs) as the volume of surface water that is not diverted for water supply under the Project is substantially greater than the additional stream seepage to the groundwater system under the Project.

As discussed in *Section 3.9 Hydrology and Water Quality*, once the Project is operational, the City and other Groundwater Sustainability Agencies (GSAs) implementing the GSPs, would be responsible for reaching and maintaining sustainable conditions in the subbasins, in compliance with the sustainability goals and thresholds of the North American and South American Subbasin GSPs. The City, in coordination with the other GSAs, would demonstrate sustainability through the avoidance of undesirable results. In the event that GSP monitoring programs indicate undesirable results – such as impacts occurring to GDEs from groundwater pumping or basin management activities – the City and other GSAs would implement GSP-identified projects and/or management actions necessary to prevent undesirable results within their respective GSA jurisdiction. Thus, operation of the proposed Project would have a less than significant impact on state or federally protected wetlands and GDEs.

### IMPACT BIO-3 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measures BIO-5a, BIO-7a, and BIO-7b (see Section 3.3.3.5)

**Significance after Mitigation:** Less than Significant after Mitigation Incorporated

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

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### IMPACT BIO-4 ANALYSIS

No portions of the Study Area provide connectivity between areas of suitable habitat. For terrestrial species, all portions of the Study Area are within a greater context of urban development, and for aquatic species, there is no connectivity between the Study Area and upstream freshwater habitats. No impact would occur to migratory corridors for terrestrial and aquatic species.

Migratory birds may use portions of the Study Area opportunistically, however, the overwhelming majority of higher quality habitat along the Pacific Flyway exists outside the Study Area. Most of the Study Area is developed or supports disturbed habitats embedded in a highly urbanized setting. Thus, impacts would be less than significant.

### IMPACT BIO-4 FINDINGS

**Level of Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None required

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**Impact BIO-5      Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

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### IMPACT BIO-5 ANALYSIS

#### CONSTRUCTION IMPACTS

Several potential wetlands are present within the well site areas as discussed under *Impact BIO-2* and *BIO-3* above. Potential direct and indirect impacts to wetlands may occur and are subject to the 2035 General Plan Policy ER. 2.1.6, which requires on- or off-site preservation of equal amounts of wetlands impacted. Implementation of **Mitigation Measures BIO-5a, BIO-7a** and **BIO-7b** would limit and reduce potential impacts to wetlands. Therefore, construction of the proposed Project would have a less than significant impact on the preservation of wetlands.

The proposed Project may require removal of trees covered by City of Sacramento Tree Ordinance (see Section 3.3.2.3 and 3.3.2.4 above) for construction and/or access. All trees on City property qualify as City Trees, as described in the Tree Ordinance which is discussed in the *Regulatory Framework* above. Removal of City Trees for public projects requires approval by the director. Based on site assessments, 16 of the well sites (2, 3, 4, 5, 7, 8, 9, 16, 21, 23, 26, 27, 30, 32, 35, and 36) contain trees within the well activity area. Some or all of these trees may have Tree Ordinance regulated work conducted as part of the proposed Project, which if not complied with could be a significant impact. For trees that cannot be avoided, any removal of City Trees would be required to comply with the City of Sacramento Tree Ordinance Section 12.56.40, including planting of a new or similar replacement tree on- or off-site. Therefore, construction of the proposed Project would have a less than significant impact associated with the removal of City trees.

#### OPERATION IMPACTS

Once construction is complete, operation of the facilities would typically not include the removal of City trees nor activities that may directly or indirectly impact surrounding wetlands. Thus, operation of the proposed Project would have a less than significant impact.

### IMPACT BIO-5 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measures BIO-5a, BIO-7a, and BIO-7b (see Section 3.3.3.5)

**Significance after Mitigation:** Less than Significant after Mitigation Incorporated

### **3.3.3.5 Mitigation Measures**

#### MITIGATION MEASURE BIO-1: PROTOCOL-LEVEL SPECIAL-STATUS PLANT SURVEYS

Conduct protocol-level special-status plant surveys in April and May within areas of non-native grassland and suitable wetlands at well sites 7, 11, 12, 13, 15, 20, 21, 24, 28, 31, 32 and 37. The surveys shall be performed in accordance with those described by resource experts and agencies (CNPS, 2001; CDFW, 2018a; USFWS, 1996). If individuals or populations are observed, they shall be mapped and notes regarding size of population, quality of habitat and potential threats taken. Populations shall be avoided to the greatest extent practical, with a recommended minimum 25-foot buffer from the edge of the population. Prior to Project activities within the vicinity of the populations, the population and associated 25-foot buffer shall be flagged or otherwise made visible. No work shall occur within that flagged area and personnel shall avoid entering the area to the greatest extent practical.

If avoidance of a population or individual is not practical, a Habitat Mitigation and Monitoring Plan (HMMP) shall be drafted for the species being impacted. The HMMP shall provide guidance for restoring, enhancing, and/or creating suitable habitat for the species being impacted, and shall also provide success criteria which will ensure success of mitigation efforts. Mitigation ratios shall be a minimum of 2:1 for either percent cover or number of individuals. The HMMP shall be final upon approval by the City of Sacramento and interested regulatory agencies.

#### MITIGATION MEASURE BIO-2A: INITIAL GROUND DISTURBING ACTIVITIES OUTSIDE OF SWAINSON'S HAWK NESTING SEASON

Initial ground disturbing activities will commence outside of the SWHA nesting season (March 1-September 15).

#### MITIGATION MEASURE BIO-2B: FOCUSED SWAINSON'S HAWK SURVEYS

If initial ground disturbing activities will commence during the SWHA nesting season (March 1-September 15), surveys based on CDFW's survey protocol shall be conducted. These surveys will include a pre-arrival assessment conducted between January 1 and March 1, to identify areas with suitable nesting sites within 0.25 miles of the well sites that will have activity in that year. The survey extent will include areas up to 0.5 miles for well sites located in the NBHCP area (well sites 15, 19, 20, 23 and 39). For well sites determined to have suitable nesting habitat within 0.25 miles or within 0.5 miles in the NBHCP area surveys will be conducted for SWHA nesting during the

nest-building period (April 1-April 30) if work will begin between April 1 and May 30. For activities that will commence after June 1, surveys for active nests will be conducted between June 1 and August 1. Any active nests shall be avoided at a distance sufficient to ensure that nest abandonment will not occur, and this distance shall be determined through observation of the nest by a qualified biologist.

### MITIGATION MEASURE BIO-3: FOCUSED BURROWING OWL SURVEYS

An assessment survey for burrowing owls shall be conducted at all well sites by a qualified biologist within a week prior to the start of any new Project activities (vegetation removal, grading, or other initial ground-disturbing activities) regardless of time of year. The survey shall be conducted in a sufficient area around the well site to identify the location and status of any nests that could potentially be directly or indirectly affected by vegetation removal, or ground disturbing activities if these activities commence between February 1 and August 31, the timeframe that corresponds to the burrowing owl nesting season. If the results of the surveys indicate that burrowing owl may be impacted by Project activities or if the well site is in the NBHCP area, the following measure shall apply:

- Preconstruction surveys in accordance with CDFW burrowing owl guidelines shall be conducted, summarized as: The Project Area and surrounding area (up to 500 feet if habitat has potential to support burrowing owl and no barriers preclude burrowing owls) shall be traversed on foot to detect burrowing owls. The survey will be conducted using transects spaced no more than 50 feet apart. For sites determined to have potential to support nesting burrowing owls, at least 3 site visits for burrowing owl shall occur between April 15 and July 15, with at least one site visit after June 15. Visits are to be at least 15 days apart.
- If any burrowing owl nest is identified during preconstruction surveys, the applicant shall comply with all CDFW guidelines regarding the minimization of impacts to the burrowing owl, including not disturbing an occupied nest during nesting season (February 1 through August 31) unless a qualified biologist approved by the Department verifies through noninvasive methods that either:
  - (1) the owls have not begun egg-laying and incubation; or
  - (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Any owls identified in the preconstruction surveys shall be relocated to appropriate locations using passive relocation techniques approved by the CDFW [CDFG] and mitigation for impacts to burrowing owl nests shall be provided and funded by the applicant in accordance with CDFG guidelines and requirements.

### MITIGATION MEASURE BIO-4: FOCUSED VALLEY ELDERBERRY LONGHORN BEETLE SURVEYS

Prior to initial ground disturbance, a survey for the valley elderberry longhorn beetle (VELB) host plant, *Sambucus*, will be conducted at all sites where *Sambucus* has been detected (well sites 38

and 24) and all sites within the NBHCP. *Sambucus* plants, if detected, shall be avoided by at least 20 feet from the dripline of the plant and this avoidance buffer shall be clearly demarcated using lathe and flagging. If *Sambucus* plants with a stem diameter of greater than 1 inch cannot be avoided, they shall be inspected for evidence of VELB presence and if any evidence of VELB is detected, the plants shall be avoided and consultation with the USFWS shall occur to determine next steps, which may include relocation of the plant. If the well site where the *Sambucus* is located is in the NBHCP, new consultation would not be required, but removal of *Sambucus* shall be conducted and mitigated for in accordance with the NBHCP.

#### MITIGATION MEASURE BIO-5A: GROUND DISTURBANCE AND WORK ACTIVITIES DURING DRY SEASON

Ground disturbance activities at well sites 2, 24, 28, and 30 shall be conducted in the dry season (May through October) and work at other sites shall be in the dry season to the greatest extent practical. Work within 200 feet of wetlands and ephemeral ditches will occur only in the dry season (June 1-October 31) and only in dry soils. Wetlands will be avoided by at least 100 feet and best management practices shall be implemented to prevent any potential increased erosion of sediment or turbid water from Project activities into these features. If work is to be conducted from November through April, silt fencing shall be installed prior to ground disturbance around the perimeter and associated 25-foot buffer of avoided wetlands and the top of bank of drainage canals. Silt fencing adjacent to drainage canals shall be installed the greatest distance possible from the top of bank, while still maintaining prevention of runoff into the feature.

#### MITIGATION MEASURE BIO-5B: FOCUSED VERNAL POOL FAIRY SHRIMP SURVEYS

Prior to initial ground disturbance, protocol-level surveys for vernal pool fairy shrimp (VPFS) will be conducted at all sites with potential to support VPFS (well sites 2, 24, 28, and 30). If VPFS are detected, and cannot be avoided, a permit for take coverage of the species, pursuant to the Federal Endangered Species Act will be acquired prior to commencement of Project Activities.

#### MITIGATION MEASURE BIO-6: NESTING BIRD SURVEYS

A survey for active bird nests shall be conducted at all well sites by a qualified biologist no more than 14 days prior to the start of Project activities (exploratory drilling, vegetation removal, grading, or other initial ground-disturbing activities) if ground disturbing activities commence during the nesting season (February 1 through August 31). The survey shall be conducted in a sufficient area around the well site to identify the location and status of any nests that could potentially be directly or indirectly affected by vegetation removal, or grading activities. For white-tailed kite, the survey area shall extend at least 0.25 miles from the area of potential disturbance. Based on the results of the pre-construction breeding bird survey, the following measure shall apply:

- If active nests of protected species are found within the well site, or close enough to the area to affect nesting success, a work exclusion zone shall be established around each nest. Established exclusion zones shall remain in place until all young in the nest

have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zones shall be established by a qualified biologist; sizes vary dependent upon bird species, nest location, existing visual buffers, ambient sound levels, and other factors; an exclusion zone radius may be as small as 25 feet (for common, disturbance-adapted species) or more than 250 feet for raptors. Listed species are typically provided more extensive exclusion zones, which may be specific to the species and/or follow CDFW guidance. Exclusion zone size may also be reduced from established levels if supported with nest monitoring by a qualified biologist indicating that work activities are not adversely impacting the nest.

#### MITIGATION MEASURE BIO-7A: WETLAND DELINEATION

A wetland delineation shall be conducted at well sites 2, 12, 13, 28, 29 30 and 37 to confirm previous site evaluations and collect information on the three wetland parameters at each of the potential wetlands, according to the methods described in the USACE Wetlands Delineation Manual ("Corps Manual"; Environmental Laboratory 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West ("Arid West Supplement"; USACE 2008), and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (Lichvar and McColley, 2008). Arid West data forms shall be filled out and a report on the results will be provided. The report will provide the information and results of the delineation. A final jurisdictional determination shall be obtained from the USACE if deemed necessary.

#### MITIGATION MEASURE BIO-7B: AVOIDANCE OF WETLANDS

Any wetlands within the Study Area shall be avoided. A 25-foot buffer around the perimeter of each wetland shall be included and avoided. Prior to ground disturbance, the 25-foot buffer shall be clearly flagged by a qualified biologist. If wetlands cannot be avoided, appropriate permits shall be obtained from the appropriate regulatory agencies (e.g., CDFW, RWQCB and USACE). Mitigation measures outlined in the permits shall be followed; however, mitigation ratios shall be no less than 1:1 for impacted wetland acreage, which follows the City of Sacramento 2035 General Plan EIR Policy ER 2.1.6, which requires on- or off-site preservation of equal amounts impacted. If impacts to seasonal wetlands shall occur, mitigation may include, but are not limited to on-site restoration/enhancement/creation, or purchase of credits at an approved mitigation bank. Mitigation Measure BIO-5a as described above shall also be implemented for the protection of wetlands.

#### MITIGATION MEASURE BIO-8: FOCUSED CREEPING RYEGRASS FLATS SURVEYS

Prior to ground disturbance or staging of materials at well site 28, the edge of the creeping ryegrass flats and associated 10-foot buffer shall be flagged by a qualified biologist and shall be avoided. If Project activities cannot avoid the buffered area, then a Habitat Mitigation and Monitoring Plan (HMMP) shall be drafted. The HMMP shall provide guidance for restoring, enhancing, and/or creating suitable habitat for the creeping ryegrass flat, and shall also provide

success criteria which will ensure success of mitigation efforts. Mitigation ratios shall be a minimum of 2:1 for percent cover. The HMMP shall be final upon approval by the City of Sacramento and interested regulatory agencies.

### **3.3.3.6 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Master EIR is incorporated by reference and as a City Project, the proposed Project adheres to the City's policies and was adequately considered during General Plan development. The 2035 General Plan Master EIR found that cumulative impacts related to biological resources within the City's planning area are less than significant when the policies of the 2035 General Plan are implemented for all areas except there would be a cumulatively significant and unavoidable impact resulting in the regional loss of special-status and sensitive plant and wildlife species and their habitats. Additionally, the Project complies with the sustainability goals of the North American and South American Subbasin Groundwater Sustainability Plans that protect groundwater dependent ecosystems within the subbasins.

The proposed Project would implement **Mitigation Measures BIO-1, BIO-2a, BIO-2b, BIO-3, BIO-4, BIO-5a, BIO-5b, and BIO-6** and comply with the applicable regulations, goals, and policies listed in *Regulatory Framework* to limit Project impacts to special-status and sensitive plant and wildlife species and their habitats. When considered with all projects implemented under the 2035 General Plan the proposed Project's contribution would not result in a cumulatively considerable overall loss of species and habitat. Therefore, the proposed Project would not add to the cumulative impact discussed in the 2035 General Plan Master EIR nor other governing plans such as the Groundwater Sustainability Plans. The Project would have a cumulatively less than significant impact to biological resources.

### **3.3.4 REFERENCES**

Sacramento, City of. 2015. Sacramento 2035 General Plan: Background Report Chapter 6, Environmental Resources.

Sacramento Groundwater Authority GSA, Reclamation District 1001 GSA, South Sutter Water District GSA, Sutter County GSA, and West Placer GSA (SGAGSA et al.). 2021. North American Subbasin Groundwater Sustainability Plan. Final.

Northern Delta Groundwater Sustainability Agency, Omochumne – Hartnell Water District, Reclamation District 551, Sacramento Central Groundwater Authority, Sacramento County, and Sloughhouse Resource Conservation District (NDGSA et al.). 2021. South American Subbasin Groundwater Sustainability Plan. Final.

WRA, Inc.. 2020. Biological Resources Technical Report City of Sacramento Groundwater Master Plan.

### 3.3.5 BIOLOGICAL RESOURCES ACRONYMS AND ABBREVIATIONS

BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biogeographic Information and Observation System
CARI	California Aquatic Resource Inventory
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CFR	Code of Federal Regulations
DSH	Diameter at standard height
FESA	Federal Endangered Species Act
GGG	Giant garter snake
GDE	Groundwater Dependent Ecosystem
HMMP	Habitat Mitigation and Monitoring Plan
MBTA	Migratory Bird Treaty Act of 1918
NBHCP	Natomas Basin Habitat Conservation Plan
OHWM	Ordinary high water mark
Inventory	Rare and Endangered Plant Inventory
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SWHA	Swainson's hawk
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
VELB	Valley elderberry longhorn beetle

VPFS      Vernal pool fairy shrimp

## 3.4 CULTURAL RESOURCES

This section evaluates the potential cultural resource impacts associated with implementation of the proposed Project. Cultural resources are defined as architectural resources, prehistoric and historic-era archaeological resources, and human remains. For the purpose of this analysis, the Study Area includes cultural resources in the vicinity of the facilities to be constructed or modified under the proposed Project. An evaluation of tribal cultural resources is provided in Section 3.13.

### 3.4.1 ENVIRONMENTAL SETTING

The discussion below defines the terms used in the cultural evaluation and describes the cultural setting of the region and Study Area.

#### 3.4.1.1 Regional Setting

The Sacramento region is characterized by the urban central city area, surrounded by suburbs and rural agricultural and residential areas.

#### REGIONAL HISTORIC PROPERTIES

According to the City's 2035 General Plan Master EIR, the majority of historic resources and landmarks are within the Central City grid, with 31 City designated historic districts, approximately 104 points listed as California Points of Historical Interest, California Landmarks, or California Register Historical Resources, and 57 properties listed on the National Register of Historic Places. (City of Sacramento, 2014)

#### REGIONAL ARCHAEOLOGICAL RESOURCES

According to the City's 2035 General Plan Master EIR, there are approximately 80 known significant archaeological resource sites within the General Plan Policy Area; however, a large portion of the city has not been surveyed for archaeological resources (City of Sacramento, 2014). Archaeological materials, including human burials, have been found throughout the city, some in deeply buried contexts. Generalized areas of high sensitivity for cultural resources are located within close proximity to the Sacramento and American Rivers and moderate sensitivity areas were identified near other watercourses.

High sensitivity areas may be found in other areas related to the ancient flows of the rivers, with differing meanders than found today. Recent discoveries during infill construction in downtown Sacramento have shown that the downtown area is highly sensitive for both historic period archaeological- and pre-contact indigenous resources. Native American burials and artifacts were found in 2005 during construction of the New City Hall and historic period archaeological resources are abundant downtown due to the evolving development of the area and, in part, to the raising of the surface street level in the 1860s and 1870s, which created basements out of the first floors of many buildings.

## REGIONAL HISTORIC BACKGROUND

### CITY OF SACRAMENTO

The history of Sacramento has been shaped by its location near two rivers. The rivers provided transportation, irrigation, and food supply for early settlers. Periodic flooding has helped shape the development of Sacramento to this day by providing plant and animal habitats, and identifying boundaries for the region. The creeks in the late 1800s were filled or diverted. Historically, during the Sutter's Era, Burn's Slough passed Sutter Fort (located in the Central City) on the north side. Another small creek or slough may have passed on the south side of the fort. Recent excavations undertaken in Sacramento provide credible evidence that the Sacramento area was occupied at a very early time. Several villages have been identified near the confluence of the Sacramento and American Rivers (City of Sacramento, 2014).

Exploration into the Sacramento Valley began in the early 1800s through colonization and the establishment of missionaries. Latin influence in the region continued in the early 1800s as Mexico gained independence from Spain and began sending explorers to Sacramento in 1822. While the area was technically under Mexican rule by 1824, the area was still inhabited by numerous Native American citizens (City of Sacramento, 2014).

The City of Sacramento was formally founded by John Sutter who arrived in 1839 and settled into Nisenan territory. The knoll on which Sutter's Fort was built was an abandoned Indian mound. Beginning in 1824 land was divided into large parcels or Mexican land grants, including New Helvetia which was the first settlement in the Sacramento area and granted to John Sutter in 1839 (City of Sacramento, 2014).

This original grid, which survives today, extended east from the Sacramento River (Front Street) to just beyond the Fort and south from Sutter's Slough (at approximately 6<sup>th</sup> and I Street) to where Broadway is today. As the "gateway" to the gold fields, mining and the business of supplying miners served as a basis for the City's early economy. By 1849, approximately 42,000 gold seekers reached California in search of gold helping Sacramento reach a population of approximately 12,000. At that time, the center commerce was at the port along the American River. However, the areas of importance gradually moved inland towards gold country. The City's location along the river ports and later the railroad played a prominent role in making Sacramento the principal mining, commercial, agricultural processing, and transportation center for the Central Valley and drew people to the area. Despite numerous floods and a major fire in 1852 that eliminated 90 percent of the city, Sacramento always recovered and rebuilt itself better than before (City of Sacramento, 2014). In 1854, Sacramento became the State capital.

The City faced severe flooding issues during the mid-1800s, with the majority of flooding originating from the American River. To resolve this problem, the City dug a new mouth for the American River and elevated city streets approximately four to fifteen feet between I Street and L Street, from Front Street to 12<sup>th</sup> Street. This was completed in 1873 and shaped the current downtown grid (City of Sacramento, 2014).

Sacramento is also known as the birthplace of the California railroad system. The State's first railroad, Theodore Judah's Sacramento Valley Railroad, served as a link between Folsom gold fields and the City. Four merchants then led the effort to establish a rail line linking California with the rest of the nation and established the Central Pacific Railroad in 1861. The transcontinental line helped establish Sacramento and California as a primary distributor of agricultural goods to the rest of the country. Sacramento also became known as the largest railroad manufacturer and repair center west of the Mississippi. Construction of the transcontinental railroad ultimately increased the local population and the diversity of the region with new residents from the east coast, as well as Chinese immigrants who worked on the railroads (City of Sacramento, 2014).

In 1895, Sacramento was dominated by agricultural uses and remained sparsely populated. Battery operated streetcars were introduced in 1891. With the extension of the streetcar line, the neighborhood along Capitol Avenue became quite fashionable and a number of palatial houses were developed. As the character of the neighborhood had shifted to urban, the City saw its first suburb, Oak Park, which was originally a farm that was sold in 1885 and subdivided in 1887. By 1911, the City of Sacramento annexed present day East Sacramento, Oak Park, Curtis Park, and Land Park, which tripled the city's size and added 15,000 people to its population. In 1924, North Sacramento, formerly known as Rancho Del Paso, was incorporated into the City (City of Sacramento, 2014).

A number of associational and religious buildings were constructed between 1900 and 1930, including Sacramento City College (1916), City Hall (1911), the City Library (1918), the Masonic Temple (1920), the Public Market (1923), the Elks Club building (1926), and the Memorial Auditorium (1927). During the same period, the City established many parks, hospitals, and commercial industries. The 1930s and 1940s saw the development of Tower Bridge (1935) and the establishment of a strong military presence in the region. Mather Air Force Base (1918) and the Sacramento Air Depot (1935 renamed McClellan in 1939) provided a huge job base during the war, which triggered growth throughout the region (City of Sacramento, 2014).

Use of automobiles drastically impacted the development of the City of Sacramento via the establishment of Interstate 5 between 2nd and 3rd Streets and reduced importance placed on the transcontinental railroad (City of Sacramento, 2014).

Establishment of the Sacramento Redevelopment Agency in the 1950s and their attempts at urban renewal projects such as K Street Mall also resulted in the destruction of many historic structures (City of Sacramento, 2014).

### **3.4.1.2 Project Setting**

The areas surrounding the Project sites are generally developed and built-out. The land uses surrounding the Project sites are described in Chapter 2 and noted in **Table 2.5-1** and **Table 2.6-1**. These land uses include single-family residential, multi-family residential, schools, commercial, office, public facilities (such as existing well sites, water storage facilities, and water treatment facilities), and open space/park.

## NORTH CENTRAL INFORMATION CENTER RECORDS SEARCH

A search of prehistoric and historic site records and literature within a 250-foot radius of each of the 38 new Project well sites was completed by the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC), California State University Sacramento (CHRIS/NCIC File No. SCA-20-97 and SCA-20-98, dated June 30, 2020) to determine the presence/absence of recorded cultural resources and their status. A pedestrian survey of the well sites was not completed due to the previous disturbance and/or developed nature of the locations.

Eleven cultural resources have been recorded within a 250-foot search radius of 11 of the 38 well locations (27 wells had no resources within the search radius) (**Table 3.4-1**). One resource is a combined historic/prehistoric cultural landscape with the remaining 10 identified as historic resources. No prehistoric archaeological sites are present at any of the 38 well locations.

**Table 3.4-1: Previously Recorded Cultural Resources Within 250 Feet of Proposed Well Locations**

Resource	Type	Eligibility NRHP/CRHR	Proposed Well Locations in Vicinity
P-34-000490 CA-SAC-463H	Historic – District, Structure, Site, Element of district; River Levee – Sacramento River – Reclamation District 1000; East Levee, Natomas East Main Drainage Canal	Determined eligible Contributing resource to the Reclamation District 1000 Rural Historic Landscape District (see P-34-005251)	Well 23 within 110 and 200 feet of resource
P-34-000505 CA-SAC-478H	Historic – Structure, Site First Transcontinental Railroad	Evaluated as eligible	Well 25 within 50 feet
P-34-000509 CA-SAC-482H	Historic – Structure, Site; South Bank Levee – American River	Evaluated as not eligible	Well 5 within 150 feet
P-34-000746 CA-SAC-571H	Historic – Structure, Site; Northern Electric Railroad	Evaluated as eligible Some segments evaluated as not eligible	Wells 21 and 30 within 70 and 30 feet, respectively
P-34-000883	Historic – Structure; El Centro Road	Not evaluated Non-contributor to the Reclamation District 1000 Rural Historic Landscape District (see P-34-005251)	Well 20 within 30 feet
P-34-001663	Historic – Structure; North Sacramento Freeway	Evaluated as not eligible	Well 25 within 70 feet
P-34-004265	Historic – Site; Chorley Park	Determined ineligible	Well 2 within resource
P-34-005225	District – Prehistoric, Historic; Sacramento River Tribal Cultural Landscape (TCL)	Evaluated as eligible	Wells 1 and 2 within resource, but no contributing elements in vicinity of the wells
P-34-005227	Historic – Building, Structure City of Sacramento Sump 102 & Well 159	Not evaluated	Well 23 within 175 feet

Resource	Type	Eligibility NRHP/CRHR	Proposed Well Locations in Vicinity
P-34-005251	Reclamation District 1000 Rural Historic Landscape District HAER No. CA-187	Determined eligible	Wells 15, 19, 20, 23, and 39 within resource, but no contributing elements of the resource are within the vicinity of wells 15, 19, 20 and 39; Well 23 is within 100 feet of contributing elements
P-34-005349 CA-SAC-1272H	Historic – Structure; Natomas East Main Drainage Canal – Reclamation District 1000	Not evaluated Part determined eligible as P-34-000490 Contributing resource to the Reclamation District 1000 Rural Historic Landscape District (see P-34-005251)	Well 23 within 110 feet

Source: Basin, 2020.

As noted in **Table 3.4-1**, four of the 11 recorded NCIC resources include a tribal cultural landscape and a historic reclamation district/rural historic landscape or were recorded as important contributors to the resource. Seven well locations are within the defined district resource boundaries, which are divided by the Tribal Cultural Landscape with two locations and the Reclamation District with five locations as further described as follows:

- The Sacramento River Tribal Cultural Landscape (SRTCL) (P-34-005225), measuring roughly 55 miles north-south by 3.5 to 10 miles east-west, extends from the confluence of the Feather River at Verona southwest of Knights Landing on the north to the Delta area near Collinsville on the south. The resource is a culturally significant natural landscape for its association with the cultural practices and beliefs of several native American tribes in the area. This resource is discussed further in *Section 3.13 Tribal Cultural Resources*.
- The Reclamation District 1000 Historic District (RD 1000) (P-34-005251) is also identified as a Rural Historic Landscape which covers approximately 87 square miles, is bounded by the Sacramento River and the River Levee on the west and south, the Cross Canal Levee on the north, the Pleasant Grove Canal and Levee on the east, and the Natomas East Main Drainage Canal on the east and south. It was among the first and largest of the major reclamation districts in the State of California with a period of significance from 1911 to 1939. The district has two recorded contributing resources: the Natomas East Main Drainage Canal (P-34-005349) and, the Sacramento River Levee and associated resources (P-34-000490).

Additionally, **Table 3.4-1** identifies that seven historic resources including roads (2), railroads (2), irrigation structures (2), and a public park are within or within 250 feet of well locations:

- El Centro Road (P-34-000883) and the North Sacramento Freeway (P-34-001663) are near Wells 20 and 25.

- The Sacramento Northern Electric Railroad (P-34-000746) alignment is near Wells 21 and 30, and the alignment of the First Transcontinental Railroad (P-34-000505) is near Well 25.
- Irrigation related resources include the South Bank Levee along the American River (P-34-000509) is near Well 5 and a well and sump (P-34-005227) is near Well 23 recorded as within the RD 1000 District but not attributed to the district.
- William Chorley Park (P-34-004265), Well 2 is near the resource.

The site records were reviewed in regard to National Register of Historic Places (NRHP) and/or the California Register of Historical Resources (CRHR) evaluations for the 11 cultural resources either within or within 250 feet of 11 well locations:

- Three (3) resources have not been evaluated;
- Two (2) resources have been evaluated as not eligible;
- One (1) resource has been determined ineligible; and
- Five (5) resources have been determined eligible – 4 under Criterion A/11 with one resource, a historic railroad eligible under Criteria A and C.2. Note, that one recorded resource (P-34-005349) is included as “not evaluated” individually but has been evaluated as part of a contributing resource to the RD 1000 Historic District (P-34-005251).

No prehistoric archaeological sites were identified during the resource review.

### ***3.4.2 REGULATORY FRAMEWORK***

This section describes laws and regulations at the federal, state, and local level that may apply to the Project.

#### ***3.4.2.1 Federal Policies and Regulations***

##### **NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED**

Cultural resources are considered through the National Historic Preservation Act (NHPA) of 1966, as amended (54 United States Code [USC] Section 307103), and its implementing regulation, which includes the Protection of Historic Properties (36 Code of Federal Regulations [CFR] Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an “undertaking” (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion

in the National Register. Under the NHPA, a resource is considered significant if it meets the National Register listing criteria (36 CFR Section 60.4).

## NATIONAL REGISTER OF HISTORIC PLACES

The National Register was established by the NHPA as “an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (36 CFR Section 60.2). The National Register recognizes both historic-era and prehistoric archaeological properties that are significant at the national, state, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (US Department of the Interior, 1995):

- Are associated with events that have made a significant contribution to the broad patterns of our history;
- Are associated with the lives of persons significant in our past;
- Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (US Department of the Interior, 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance” (US Department of the Interior, 1995). The National Register recognizes seven qualities that, in various combinations, define integrity: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity, a property must possess several, and usually most, of these seven aspects. The retention of the specific aspects of integrity is paramount for a property to convey its significance.

### **3.4.2.2 State Policies and Regulations**

#### CALIFORNIA ENVIRONMENTAL QUALITY ACT

Under CEQA (PRC Section 21084.1), a project will have a significant effect on the environment if it causes a substantial adverse change in the significance of a historical resource. The CEQA Guidelines (14 California Code of Regulations [CCR] Section 15064.4) recognize that a historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a

historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be a historical resource as defined in PRC Section 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, then the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.4 apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired) in the significance of a historical resource, then the lead agency must identify potentially feasible measures to mitigate these effects (14 CCR Section 15064.4[b][1], 15064.4[b][4]).

If an archaeological site does not meet the historical resource criteria contained in the CEQA Guidelines, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in PRC Section 21083.2, a "unique" archaeological resource is an archaeological artifact, object, or site, for which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in PRC Section 21083.2, then the site is to be treated in accordance with the provisions of PRC Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (PRC Section 21083.1[a]). If preservation in place is not feasible, mitigation measures shall be required.

If an archaeological resource is neither a unique archaeological nor a historical resource, then the effects of the project on those resources shall not be considered a significant effect on the environment (14 CCR Section 15064.4[c][4]).

## CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Created in 1992 and implemented in 1998, the California Register is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change.” Certain properties, including those listed in, or formally determined eligible for listing in, the National Register and California Historical Landmarks numbered 770 and higher, automatically are included in the California Register. Other properties recognized under the California Points of Historical Interest Program, identified as significant in historic resources surveys or designated by local landmarks programs, may be nominated for inclusion in the California Register. A resource, either an individual property or a contributor to a historic district, may be listed in the California Register if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on National Register criteria:

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

Furthermore, under state law (PRC Section 5024.1; 14 CCR Section 4852[c]), a cultural resource must retain integrity to be considered eligible for the California Register. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association.

Typically, an archaeological site in California is recommended eligible for listing in the California Register based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods, or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions. However, archaeological sites may also be recommended eligible under California Register Criteria 1, 2, and/or 3.

## CALIFORNIA HEALTH AND SAFETY CODE SECTIONS 7050 AND 7052

California Health and Safety Code Section 7050.5 declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county

coroner must be notified. California Health and Safety Code Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

### CALIFORNIA PUBLIC RESOURCES CODE SECTION 5097.5 AND 30244

PCR Section 5097.5 prohibits “knowing and willful” removal, destruction, injury, defacement, and excavation upon any historic or prehistoric ruins, burial grounds, or archaeological or vertebrate paleontological site situated on public lands (lands under state, county, city, district, or public authority ownership or jurisdiction, or the ownership or jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. PRC Section 30244 requires reasonable mitigation for impacts on archaeological or paleontological resources that occur as a result of development on public lands.

#### **3.4.2.3 Local Policies and Regulations**

##### CITY OF SACRAMENTO 2035 GENERAL PLAN

The City has identified the following goals and policies in the 2035 General Plan:

**GOAL HCR 1.1 - Comprehensive City Preservation Program.** Maintain a comprehensive, citywide preservation program to identify, protect, and assist in the preservation of Sacramento’s historic and cultural resources.

**GOAL HCR 2.1: Identification and Preservation of Historic and Cultural Resources.** Identify and preserve the city’s historic and cultural resources to enrich our sense of place and our understanding of the city’s prehistory and history.

- **Policy H.C.R 2.1.1: Identification.** The City shall identify historic and cultural resources, including individual properties, districts, and sites (e.g., archaeological sites), to ensure adequate protection of these resources.
- **Policy HCR 2.1.2: Applicable Laws and Regulations.** The City shall ensure compliance with City, State, and Federal historic preservation laws, regulations, and codes to protect and assist in the preservation of historic and archaeological resources, including the use of the California Historical Building Code as applicable. Unless listed in the Sacramento, California, or National registers, the City shall require discretionary projects involving resources 50 years and older to evaluate their eligibility for inclusion on the California or Sacramento registers for compliance with the California Environmental Quality Act.
- **Policy HCR 2.1.3: Consultation.** The City shall consult with appropriate organizations and individuals (e.g., California Historical Resources Information System (CHRIS) Information Centers, the Native American Heritage Commission NAHC, the CA Office of Planning Research (OPR) “Tribal Consultation Guidelines”, etc.) and shall establish a public outreach policy to minimize potential impacts to historic and cultural resources.

**HCR 2.1.5: National, California, and Sacramento Registers** - The City shall support efforts to pursue eligibility and listing for qualified resources including historic districts and individual resources under the appropriate National, California, or Sacramento registers.

- **Policy HCR 2.1.6: Planning.** The City shall take historical and cultural resources into consideration in the development of planning studies and documents.
- **Policy HCR 2.1.8: Historic Preservation Enforcement.** The City shall ensure that City enforcement procedures and activities comply with local, State, and Federal historic and cultural preservation requirements.
- **Policy HCR 2.1.11: Compatibility with Historic Context.** The City shall review proposed new development, alterations, and rehabilitation/remodels for compatibility with the surrounding historic context. The City shall pay special attention to the scale, massing, and relationship of proposed new development to surrounding historic resources.
- **Policy HCR 2.1.16: Archaeological & Cultural Resources.** The City shall develop or ensure compliance with protocols that protect or mitigate impacts to archaeological and cultural resources including prehistoric resources.
- **Policy HCR 2.1.17: Preservation Project Review.** The City shall review and evaluate proposed development projects to minimize impacts on identified historic and cultural resources, including projects on Landmark parcels and parcels within Historic Districts, based on applicable adopted criteria and standards.

### 3.4.3 IMPACT ANALYSIS

#### 3.4.3.1 Methodology for Analysis

As described above in *Section 3.4.1.2 Project Setting*, the results of the CHRIS NCIC records search and NAHC SLF were used to identify potential known prehistoric and historic resources that may overlap or be impacted by the proposed Project.

In addition, reference material from the Bancroft Library at the University of California, Berkeley, Basin Research Associates, and available information on the web was also consulted. Where available, Google "Street Views" of the locations were reviewed to examine each location. Reference sources included:

- *National Register of Historic Places* listings for Sacramento County, California);
- *OHP Built Environment Resources Directory* [BERD];
- *Listed California Historical Resources* with the most recent updates of the National Register of Historic Places; California Historical Landmarks; and, California Points of Historical Interest as well as other evaluations of properties reviewed by the State of California Office of Historic Preservation;
- *California History Plan*;

- *California Inventory of Historic Resources*;
- *Five Views: An Ethnic Sites Survey for California*; and,
- *Archaeological Determinations of Eligibility*.

The records and literature review and context provided in *Section 3.4.1 Environmental Setting* were used to screen Project sites for potential cultural resources. Sites with resources were identified for further evaluation to assess project impacts based on the guidance and requirements identified by the regulations and policies identified in *Section 3.4.2 Regulatory Framework* and used to consider whether a significant impact would occur under each of the thresholds of significance described in *Section 3.4.3.2 Thresholds of Significance* below. Sites that had not previously been surveyed were evaluated for their likelihood of having resources present. Sites that were previously surveyed with no resources that meet the significance criteria as defined by the regulations in *Section 3.4.2 Regulatory Framework* were determined to not have potential to be significantly affected by the proposed Project.

### **3.4.3.2 Thresholds of Significance**

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018 an impact on cultural resources would be considered significant if the Project would:

- Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5.
- Disturb any human remains, including those interred outside of dedicated cemeteries.

### **3.4.3.3 Criteria Requiring No Further Evaluation**

All criteria require further evaluation.

### **3.4.3.4 Impacts and Mitigation Measures**

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<b>Impact CUL-1</b>	<b>Substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.</b>
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## IMPACT CUL-1 ANALYSIS

### CONSTRUCTION IMPACTS

The archaeological Area of Potential Effects (APE) includes all areas where direct or indirect impacts to cultural resources could occur within the 38 well sites. The horizontal APE for each well is approximately one acre that would include both the drill rig area and the above grade facilities needed for water production and connection to delivery pipelines. The Vertical APE includes subsurface disturbance within the one acre well site (200 x 200 feet) for pipe installation and piping

and other subsurface infrastructure associated with water production and treatment. In addition, test drilling for the well bores would range from 250 to 1,200 feet.

Construction staging areas and temporary construction work spaces (including equipment, laydown of materials and storage of excavated materials) are anticipated and would occur within the well site or immediately adjacent project site. Staging areas would typically be in parking lots, city streets, lawn areas, or vacant land with minimal improvements. The use of these areas would not result in any significant subsurface impacts.

Historic resources defined in Section 15064.5 of the CEQA Guidelines, which includes historic resources such as those listed on national, state, or local registries are described in *Section 3.4.2.2 State Policies and Regulations* above. As described in the *Environmental Setting* (Section 3.4.1.2), 11 of the Project sites were identified to have resources that were reviewed for inclusion on the National Register of Historic Places and/or California Register of Historical Resources. A review of the 11 resources identified on these sites suggests that Project construction activities within the APE would have no effect or no adverse effect on any qualities that make the resources eligible for the two registers.

Additionally, given the characteristics of the proposed Project activities described in the *Project Description* (Chapter 2) combined with the historical resources review, the potential for intact, significant archaeological deposits that could qualify as historical resources to be present at the Project sites is considered low. However, it is possible that previously unidentified buried prehistoric or historic resources could be encountered during construction of Project facilities, such as pipelines or other below ground features, which could create a significant impact if resources were damaged or destroyed. **Mitigation Measure CUL-1** requires a resource sensitivity and awareness training and **CUL-2** requires assessment, avoidance, and minimization requirements that would be implemented to ensure that resources are protected (full mitigation measure text described in Section 3.4.3.5 below). These measures would ensure that construction crews are trained to recognize and respect cultural resources, and that measures to evaluate, avoid, or minimize effects on significant resources would be implemented if any resources are discovered. Thus, construction of the proposed Project would have a less than significant impact.

### OPERATION IMPACTS

Operational activities would generally consist of regular maintenance, supply deliveries, and water quality sampling. The potential for these operational activities to encounter intact, significant historic archaeological deposits on one of the previously disturbed sites would be very low. Thus, operation of the proposed Project would have a less than significant impact.

### IMPACT CUL-1 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measures CUL-1 and CUL-2 (see Section 3.4.3.5)

**Significance after Mitigation:** Less than Significant after Mitigation Incorporated

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**Impact CUL-2      Substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5.**

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## IMPACT CUL-2 ANALYSIS

### CONSTRUCTION IMPACTS

Unique archaeological resources are defined as archaeological artifacts, objects, or sites, for which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria defined in Section 15064.5 of the CEQA Guidelines as described in *State Policies and Regulations* (Section 3.4.2.2) above. As described in the *Environmental Setting* (Section 3.4.1.2), the records search identified 11 known archaeological resources within a 250-foot buffer of 11 of the 38 proposed Project sites, and no recorded pre-historic resources are present at any of the well sites. Project-related ground disturbance within the APE has the potential to significantly damage previously unidentified subsurface resources if not properly handled during construction. Given the construction activities of the Project, this potential impact occurring to intact, unknown, subsurface archaeological resources present at the Project sites is considered unlikely. Despite the low potential for occurrence, the possibility of encountering a resource, should it occur, could be significant so **Mitigation Measure CUL-1** would be required to be implemented prior to construction to ensure construction staff are trained, and **Mitigation Measure CUL-2** would be required to be implemented to ensure proper handling and procedures are in place if previously undiscovered resources are encountered during construction. Thus, construction of the proposed Project would have a less than significant impact.

### OPERATION IMPACTS

Similar to the discussion in *Impact CUL-1 Analysis* above, the potential for intact, unknown, subsurface archaeological resources to be present on a Project site that was previously disturbed and for the Project activities to impact them is considered very low. Thus, operation of the proposed Project would have a less than significant impact.

### IMPACT CUL-2 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure CUL-1 and CUL-2 (see Section 3.4.3.5)

**Significance after Mitigation:** Less than Significant after Mitigation Incorporated

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**Impact CUL-3      Disturb any human remains, including those interred outside of dedicated cemeteries.**

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## IMPACT CUL-3 ANALYSIS

CONSTRUCTION IMPACTS

The proposed Project would involve disturbance of ground surfaces as described in Chapter 2. These activities would be confined to the Project sites. Given the characteristics of the proposed Project activities and cultural resources review (see *Section 3.4.1 Environmental Setting* above), the potential to encounter human remains is considered low. However, in the event human remains are encountered during construction **Mitigation Measure CUL-3** would be implemented, which specifies proper treatment of remains, to ensure that any remains are treated in accordance with state requirements and with appropriate dignity and not significantly impacted by the Project. Thus, construction of the proposed Project would have less than a significant impact.

OPERATION IMPACTS

Similar to the discussion in the *Impact CUL-1* and *Impact CUL-2* analyses, operational activities would generally not involve ground disturbances in undisturbed locations where O&M activities would be located. The potential to discover human remains on these previously disturbed portions of the Project site is considered very low. Thus, operation of the proposed Project would have a less than significant impact.

IMPACT CUL-3 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure CUL-3 (see Section 3.4.3.5)

**Significance after Mitigation:** Less than Significant after Mitigation Incorporated

**3.4.3.5 Mitigation Measures****MITIGATION MEASURE CUL-1: CONDUCT CULTURAL RESOURCES SENSITIVITY AND AWARENESS TRAINING PROGRAM PRIOR TO GROUND-DISTURBING ACTIVITIES**

The City shall require the contractor to provide a cultural resources sensitivity and awareness training program (Worker Environmental Awareness Program [WEAP]) for all personnel involved in Project construction, including field consultants and construction workers. The WEAP will be developed in coordination with an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology. The WEAP shall be conducted before any Project-related construction activities begin at the Project site. The WEAP will include relevant information regarding sensitive cultural resources and tribal cultural resources, including

applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations.

The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resources that could be located at the Project site and will outline what to do and who to contact if any potential cultural resources are encountered. (See also **Mitigation Measure TCR-1** in Section 3.13)

#### MITIGATION MEASURE CUL-2: IN THE EVENT THAT CULTURAL RESOURCES ARE DISCOVERED DURING CONSTRUCTION, IMPLEMENT AVOIDANCE AND MINIMIZATION MEASURES TO AVOID SIGNIFICANT IMPACTS AND PROCEDURES TO EVALUATE RESOURCES

If cultural resources (such as structural features, unusual amounts of bone or shell, artifacts, or human remains) are encountered at the Project site during construction, work shall be suspended within 100 feet of the find (based on the apparent distribution of cultural materials), and the construction contractor shall immediately notify the Project's City representative. Avoidance and preservation in place are the preferred manner of mitigating impacts to cultural resources and tribal cultural resources. This will be accomplished, if feasible, by several alternative means, including:

- Planning construction to avoid tribal cultural resources, archaeological sites and/or other cultural resources; incorporating cultural resources within parks, green-space or other open space; covering archaeological resources; deeding a cultural resource to a permanent conservation easement; or other preservation and protection methods agreeable to consulting parties and regulatory authorities with jurisdiction over the activity.
- Recommendations for avoidance of cultural resources and tribal cultural resources will be reviewed by the City representative and other appropriate agencies, in light of factors such as costs, logistics, feasibility, design, technology and social, cultural and environmental considerations, and the extent to which avoidance is consistent with Project objectives. Avoidance and design alternatives may include realignment within the Project site to avoid cultural resources, modification of the design to eliminate or reduce impacts to cultural resources or modification or realignment to avoid highly significant features within a cultural resource.
- If the discovered cultural resource can be avoided, the construction contractor(s), will install protective fencing outside the site boundary, including a 100-foot buffer area, before construction restarts.
- The construction contractor(s) will maintain the protective fencing throughout construction to avoid the site during all remaining phases of construction. The area will be demarcated as an "Environmentally Sensitive Area".

If a cultural resource cannot be avoided, the following performance standard shall be met prior to continuance of construction and associated activities that may result in damage to or destruction of cultural resources or tribal cultural resources:

- Each resource will be evaluated for California Register of Historical Resources- (CRHR) eligibility through application of established eligibility criteria (California Code of Regulations 15064.636).

If a cultural resource is determined to be eligible for listing in the CRHR, the City will avoid damaging effects to the resource in accordance with California PRC Section 21084.3, if feasible. The City shall coordinate the investigation of the find with a qualified archaeologist (meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology) approved by the City. A written report detailing the site assessment, coordination activities, and management recommendations shall be provided to the City representative by the qualified archaeologist. These recommendations will be documented in the Project record. (See also **Mitigation Measure TCR-2** in Section 3.13)

### MITIGATION MEASURE CUL-3: IMPLEMENT PROCEDURES IN THE EVENT OF THE INADVERTENT DISCOVERY OF HUMAN REMAINS

If an inadvertent discovery of human remains is made at any time during Project-related construction activities or Project planning, the following performance standards shall be met prior to implementing or continuing actions such as construction, which may result in damage to or destruction of human remains. In accordance with the California Health and Safety Code (HSC), if human remains are encountered during ground-disturbing activities, the City shall immediately halt potentially damaging excavation in the area of the remains and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (HSC Section 7050.5[b]).

If the human remains are of historic age and are determined to be not of Native American origin, the City will follow the provisions of the HSC Section 7000 (et seq.) regarding the disinterment and removal of non-Native American human remains. (See also **Mitigation Measure TCR-3** in Section 3.13).

#### **3.4.3.6 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Master EIR is incorporated by reference and as a City Project, the proposed Project adheres to the City's policies. The 2035 General Plan Master EIR finds the change in significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5 to be a significant and unavoidable impact because it may be infeasible to protect historic and archaeological resources from damage or destruction. This impact is thus potentially a significant and unavoidable cumulative impact. However, the proposed Project's contribution to this impact would be limited, because the small footprint of Project sites combined with **Mitigation Measures CUL-1** through **CUL-3** limits the Project's potential for impact. This slight impact would not be cumulatively considerable because resources would be identified and preserved or avoided. Therefore, the Project would have a less than significant cumulative impact to cultural resources.

### **3.4.4 REFERENCES**

Basin Research Associates. 2020. Archaeological Literature Review – Initial Screening for City of Sacramento Well Replacement Program - 38 Water Wells, Sacramento County. August 25, 2020.

Basin Research Associates, 2022. Cultural Resources Assessment Report for City of Sacramento Groundwater Master Plan Well Replacement Program – Sacramento, Sacramento County, California. September 2022.

### **3.4.5 CULTURAL RESOURCES ACRONYMS AND ABBREVIATIONS**

CCR	California Code of Regulations
CEQA	California Environmental Quality Act
HSC	California Health and Safety Code
CHRIS	California Historical Resources Information System
PRC	California Public Resources Code
CRHR	California Register of Historical Resources
CFR	Code of Federal Regulations
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
RD	Reclamation District
SRTCL	Sacramento River Tribal Cultural Landscape
WEAP	Worker Environmental Awareness Program

## 3.5 ENERGY

This section discusses energy use and applicable regulations that aim to conserve energy. This section presents the energy consumption associated with the Project in the context of Appendix G and Appendix F of the *CEQA Guidelines*, which require EIRs to include a discussion of projects' potential energy impacts. For the purpose of this analysis, the study area includes the energy profile of the City.

### 3.5.1 ENVIRONMENTAL SETTING

The discussion below defines the terms used in the energy evaluation and describes the conditions of the study area.

#### 3.5.1.1 Definitions

Energy sources for the proposed Project would consist of electricity for operating the wells, and petroleum – consisting of gasoline for operations and maintenance (O&M) vehicles, and diesel for heavy-duty construction vehicles.

#### 3.5.1.2 Study Area Setting

##### ELECTRICITY

Sacramento Municipal Utility District (SMUD) is a publicly owned utility responsible for the generation, transmission, and distribution of electrical power to over 1.5 million people in its 900-square-mile service area, which includes the Project study area. SMUD's service area includes most of Sacramento County and a small portion of Placer County. In 2021, SMUD obtained its electricity from the following sources: natural gas (51.4 percent); large hydroelectric (17.7 percent); and eligible renewable resources (29.6 percent), including biomass and biowaste, geothermal, eligible hydroelectric, solar, and wind. The remaining 1.3 percent came from nuclear and other unspecified power sources (SMUD, 2022a). SMUD's total electricity consumption in 2021 was 10,479 gigawatt hours (GWh), consisting of 4,749 GWh for the residential sector, 3,973 GWh for commercial buildings, 760 for industrial, 438 for other commercial, 353 for agricultural and water pumping, 150 for mining and construction, and 56 for streetlights (CEC, 2022a). SMUD offers various renewable energy programs, including SolarShares, where SMUD shares in the cost of installing and managing solar photovoltaic arrays at properties in its service area.

The City of Sacramento internal operations, including electricity, natural gas, and diesel fuel energy used at City-owned and operated buildings and facilities, was inventoried for 2013 in the City of Sacramento Internal Operations Climate Action Plan (2016 IO CAP) (City of Sacramento, 2016). Buildings and facilities in this sector include City-owned and operated offices, corporation yards, and parking lot facilities, in addition to irrigation systems at City-owned parks. Electricity use supported lighting, appliances, and equipment in City buildings and facilities. Natural gas was most

often used for space heating and water heating. Diesel fuel was used for a City-operated power supply, which is used intermittently during power outages and for regular testing. The building and facility energy sector consumed 35.2 GWh of electricity and 800,546 therms of natural gas, and approximately 9,300 gallons of diesel fuel. Electric vehicle charging was also metered in total building electricity consumption but is subtracted from total building electricity based on the total kilowatt hours (kWh) of charging estimated under the vehicle fleet sector. Nearly all electricity was purchased from the SMUD in 2013. Additionally, on-site solar photovoltaic cells generated 4.87 megawatt-hours (MWh), of which 4.81 MWh were used on site and the remaining was returned back to the utility grid.

The City provides several water-related utility services to residents and businesses in the form of water intake, treatment, and distribution; wastewater collection and conveyance; and stormwater drainage. In 2013, pumping and other activities associated with these water-related services conveyed approximately 61,018 million gallons (MG) of water and wastewater, and consumed 47.4 GWh of electricity. This sector comprised 20 percent of the City's total municipal GHG emissions in 2013. Water management activity represented the second largest sector of emissions in the city after building and facility energy use.

The City of Sacramento Department of Utilities maintains an inventory of the amount of energy consumed annually. In the most recent year, 2022, the City of Sacramento Department of Utilities consumed approximately 40,000 MW of electricity and 249,000 therms of natural gas.

## TRANSPORTATION FUEL (PETROLEUM)

Total sales of gasoline in the City of Sacramento were 245 million gallons in 2020, which was a slight decrease from the 2019 value of 278. In California, in 2021, taxable gasoline sales (including aviation gasoline) amounted to approximately 14 billion gallons, and taxable diesel fuel sales amounted to approximately 3 billion gallons (California Department of Tax and Fee Administration, 2022).

Demand for gasoline in California is forecast (CEC 2017) to range from 12.3 billion to 12.7 billion gallons in 2030, with most of the demand generated by light-duty vehicles. While the models show an increase in light-duty vehicles along with population and income growth over the forecast horizon, total gasoline consumption is expected to decline, primarily because of increasing fuel economy (stemming from federal and state regulations) and displacement of gasoline vehicles from the increasing market penetration of zero-emission vehicles (ZEVs). For diesel, demand is forecast to increase from around 3.7 billion diesel gallons in 2015 to about 4.7 billion by 2030, following the growth of California's economy; however, the demand will be tempered by an increase in fleet fuel economy and market penetration of alternative fuels, most prominently by natural gas in the medium- and heavy-duty vehicle sectors. Electricity consumption in the transportation sector is projected to increase to between approximately 12,000 and 18,000 GWh by 2030, a six-fold to nine-fold increase from 2017. The growth of light-duty, plug-in electric vehicles is mostly responsible for the change in electricity demand but increasing electrification in other transportation sectors also contributes to the projected increase in electricity consumption.

According to the City of Sacramento internal operations energy inventory for the 2016 IO CAP, the City's 2013 vehicle fleet consisted of a variety of vehicle types using both conventional and alternative fuels. In 2013, the City operated 1,819 on-road vehicles including maintenance trucks, vans, solid waste collection vehicles, police and fire vehicles, and light duty passenger vehicles. In addition, several alternative fuel on-road vehicles were in use in 2013, including 7 electric vehicles, 40 gasoline-hybrids, and 266 flex fuel vehicles that run on ethanol-gasoline blended fuel (E85). City operations also include operation of off-road vehicles and equipment, such as construction equipment, off-road utility vehicles, and landscaping equipment (City of Sacramento, 2016). As of March 2022, all vehicles used by staff to service existing groundwater wells are gasoline vehicles and it was unknown if fleets would provide electric, hybrid, or other alternative fuel vehicles for O&M activities (Sananikone elec. comm., 2022).

### **3.5.1.3 Existing Conditions**

Existing groundwater wells operated by the City consume energy, which is supplied through connection to SMUD. The existing wells do not consume natural gas. Existing wells 124 (Well 22), 156 (Well 25), and 158 (Well 34) participate in the SMUD SolarShares program (Sananikone elec. comm., 2022) and would continue when those wells are replaced. The City of Sacramento also maintains solar power at the E.A. Fairbairn Water Treatment Plant, where surface water from the American River is treated. Approximately 12 percent of the E.A. Fairbairn Water Treatment Plant electricity demand is met by onsite solar (Sananikone elec. comm., 2022).

## **3.5.2 REGULATORY FRAMEWORK**

This section describes laws and regulations at the federal, state, and local level that may apply to the Project.

### **3.5.2.1 Federal Policies and Regulations**

#### **ENERGY POLICY AND CONSERVATION ACT AND CORPORATE AVERAGE FUEL ECONOMY STANDARDS**

While US EPA calculates average fuel economy levels for vehicle manufacturers, the US Department of Transportation (DOT) National Highway Traffic and Safety Administration (NHTSA) sets and enforces the Corporate Average Fuel Economy (CAFE) Standards. First enacted by Congress in 1975 pursuant to the Energy Policy and Conservation Act, the purpose of CAFE is to reduce energy consumption by increasing the fuel economy of cars and light trucks. The CAFE standards are fleet-wide averages that must be achieved by each vehicle manufacturer for its fleet of cars and light trucks, each year, since 1978. The 2012 CAFE standards established final combined fleet-wide average fuel economy of 40.3-41.0 mpg in model year 2021.

## ENERGY POLICY ACT

The Energy Policy Act of 1992 (EPAAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAAct requires certain federal, state, and local government and private fleets to purchase a percentage of light-duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAAct. Federal tax deductions are allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 provides renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; establishes a federal purchase requirement for renewable energy; requires that federal fleet vehicles capable of operating on alternative fuels be operated on these fuels exclusively; and sets federal reliability standards regulating the electrical grid.

## ENERGY INDEPENDENCE AND SECURITY ACT

The Energy Independence and Security Act of 2007 aims to move the United States toward greater energy independence and security; increase the production of clean renewable fuels; protect consumers; increase the efficiency of products, buildings, and vehicles; promote research on and deploy greenhouse gas capture and storage options; improve the energy performance of the Federal Government; and increase United States energy security, develop renewable fuel production, and improve vehicle fuel economy. The Energy Independence and Security Act reinforces the energy reduction goals for federal agencies, as well as introduces more aggressive requirements. The three key provisions enacted are the Corporate Average Fuel Economy Standards, the Renewable Fuel Standard, and the appliance/lighting efficiency standards.

### **3.5.2.2 State Policies and Regulations**

#### WARREN-ALQUIST ACT

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the California Energy Commission (CEC). The Act established state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The California Public Utilities Commission (CPUC) regulates privately-owned utilities in the energy, rail, telecommunications, and water fields. The Energy Commission's Chief Counsel's Office publishes an updated version of the Warren-Alquist Act every year.

#### STATE OF CALIFORNIA ENERGY ACTION PLAN

The first Energy Action Plan (EAP) emerged in 2003 from a crisis atmosphere in California's energy markets. The State's three major energy policy agencies (CEC, CPUC, and the Consumer Power and

Conservation Financing Authority [established under deregulation and now defunct]) came together to develop one high-level, coherent approach to meeting California's electricity and natural gas needs. It was the first time that energy policy agencies formally collaborated to define a common vision and set of strategies to address California's future energy needs and emphasize the importance of the impacts of energy policy on the California environment.

In the October 2005 EAP II, CEC and CPUC updated their energy policy vision by adding some important dimensions to the policy areas included in the original EAP, such as the emerging importance of climate change, transportation-related energy issues and research and development activities. CEC and CPUC adopted an update to the EAP II in February 2008 that supplements the earlier EAPs and examines the State's ongoing actions in the context of global climate change. The 2008 EAP is the current California energy plan. The plan calls for energy efficiency through building codes, appliance standards, and utility energy efficiency programs; demand response; investing more in renewable energy; improving electricity reliability; transitioning away from natural gas; and investing in alternative fuels. The plan also acknowledges that most energy efficiency gains in California are now addressed through AB 32 (discussed below).

## INTEGRATED ENERGY POLICY REPORT

Senate Bill (SB) 1389, enacted in 2002, requires CEC to: "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (Public Resources Code Section 25301(a)). This work culminated in the Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every two years and an update every other year. The 2021 IEPR is the most recent IEPR, which was adopted April 5, 2022. The 2021 IEPR provides a summary of priority energy issues currently facing the State, outlining strategies and recommendations to further the State's goal of ensuring reliable, affordable, and environmentally responsible energy sources. Energy topics covered in the report include decarbonizing buildings; ensuring energy reliability; decarbonizing the gas system; assessing the state's energy demand forecast; and assessing clean transportation programs.

## RENEWABLE ENERGY

The CPUC and the CEC jointly implement the statewide Renewable Portfolio Standard (RPS) program through rulemakings and monitoring the activities of electric energy utilities in the state. SB 1078 established the RPS in 2002, which required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from eligible renewable sources by 2017. SB 107 changed the target date to 2010. In November 2008, Executive Order S-14-08 expanded the state's RPS goal to 33 percent renewable power by 2020. In September 2009, Executive Order S-21-09 directed the California Air Resources Board (CARB) (under its AB 32 authority) to enact regulations to help the state meet the 2020 goal of 33

percent renewable energy. The 33 percent by 2020 RPS goal was codified in April 2011 with SB X1-2. SB X1-2 required retail sellers of electricity to provide at least 33 percent of their electricity supply (portfolio) from renewable sources by 2020. This requirement applied to investor-owned utilities, publicly-owned utilities such as the SMUD, and community choice aggregators. Senate Bill 350, the Clean Energy and Pollution Reduction Act of 2015, was signed into law on October 7, 2015. It established new goals for clean energy, clean air, and greenhouse gas (GHG) reduction goals for 2030 and beyond. SB 350 required California's renewable electricity procurement goal to be increased under the RPS from 33 percent by 2020 to 50 percent by 2030. On September 10, 2018, Governor Brown signed SB 100, which increased the RPS requirement to 60 percent eligible renewables by 2030 and 100 percent by 2045.

## STATE ALTERNATIVE FUELS PLAN

AB 1007 of 2005 required the State Energy Resources Conservation and Development Commission, in partnership with the state board, and other state agencies to prepare a state plan by 2007 to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan (SAF Plan) in partnership with CARB and in consultation with other State, federal, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality. The goal of the plan was to reduce petroleum fuel use to 15 percent below 2003 levels by 2020.

## STATEWIDE GHG TARGETS

The State set forth Statewide GHG Targets that are described in Section 3.7 Greenhouse Gas Emissions. Assembly Bill 32, Senate Bill 97, and the California Air Resources Board's Climate Change Scoping Plan set targets and goals that target GHG reduction recommendations through energy efficiency measures and renewable power generation.

## CLEAN TRANSPORTATION PROGRAM

The Clean Transportation Program, also known as the Alternative and Renewable Fuels and Vehicle Technology Program (ARFVTP) was established by Assembly Bill 118, which took effect January 1, 2008. Assembly Bill 8 extended the program through January 1, 2024. Using funds collected from vehicle and vessel registration, vehicle identification plates, and smog abatement fees, the program: Expedites development of conveniently located fueling and charging infrastructure for low- and zero-emission vehicles; accelerates advancement and adoption of alternative fuel and advanced technology vehicles, including low- and zero-emission medium- and heavy-duty vehicles; expands in-state production of alternative, low-carbon renewable fuel; and supports manufacturing and workforce training to help meet the needs of the state's growing clean transportation and fuels market.

## IN-USE OFF-ROAD DIESEL VEHICLES

CARB's In-Use Off-Road Diesel Vehicles regulation became effective in 2008. The regulation covers a wide scope of vehicle types, including those used in construction. Although the stated goal of the regulation is to reduce particulate matter (PM) and oxides of nitrogen (NO<sub>x</sub>) emissions from existing (i.e., in-use) off-road heavy-duty diesel vehicles in California, the regulation limits vehicle idling. Under the rule, no vehicle or engine may idle for more than five minutes, which conserves fuel.

## ADVANCED CLEAN CARS

CARB administers the Advanced Clean Cars program, which promulgates the Low-Emission Vehicle (LEV) regulation for criteria and GHG emissions and a technology forcing regulation for zero-emission vehicles (ZEV) that contributes to both types of emission reductions. The Advanced Clean Car I regulations were adopted in 2012 to address model year 2015-2025. The proposed Advanced Clean Cars II regulations will go to the CARB board in June 2022 to propose standards and ZEV requirements for model years 2026-2035. The LEV GHG regulations set vehicle technology standards including engine and emission control advancements, wider application of advanced hybrid technology, and greater use of stronger and lighter materials. The ZEV regulation requires battery, fuel cell, and plug-in hybrid electric vehicles to account for up to 15 percent of California's new vehicle sales by 2025. The LEV GHG component was developed in coordination with the US EPA and NHTSA for One National Program to harmonize GHG and fuel economy standards.

### **3.5.2.3 Local Policies and Regulations**

#### CITY OF SACRAMENTO 2035 GENERAL PLAN AND CLIMATE ACTION PLAN

In March of 2015, the City adopted the 2035 General Plan update. The 2035 General Plan integrated measures and actions from the City's Phase 2 Climate Action Plan (CAP) (adopted February 14, 2012) that focused on, among other things, reducing energy consumption to reduce communitywide GHG emissions.

The City of Sacramento 2035 General Plan includes the following policies applicable to City operations. The 2035 General Plan lists policies and programs that would reduce GHG emissions for reference in Appendix B of the 2035 General Plan.

- **Policy U 6.1.2: Peak Electric Load of City Facilities.** The City shall reduce the peak electric load for City facilities by 10 percent by 2015 compared to the baseline year of 2004, through energy efficiency, shifting the timing of energy demands, and conservation measures.
- **Policy U 6.1.4: Energy Efficiency of City Facilities.** The City shall improve energy efficiency of City facilities to consume 25 percent less energy by 2030 compared to the baseline year of 2005.

## CITY OF SACRAMENTO CLIMATE ACTION PLAN FOR INTERNAL OPERATIONS

In 2010, the City adopted the Phase 1 Climate Action Plan for Internal Operations (IO CAP) to reduce GHG emissions from the City's municipal operations through energy efficiency and alternative fuels. The IO CAP was called for in the 2035 General Plan. The City prepared an update in 2013 in the 2016 IO CAP (City of Sacramento, 2016). The 2016 IO CAP identified GHG reduction strategies in five main areas, which also have an impact on energy conservation and efficiency: Building Energy, Water Management, Streetlights and Signals, Vehicle Fleet and Fuels, and Urban Forestry. Water Management strategies include pumping efficiency and system optimization, low-maintenance landscaping, and long-term water savings strategies and drought-response. Vehicle Fleet and Fuels strategies include fleet efficiency and electric vehicle pledge, and alternative fuels.

## MAYOR'S COMMISSION ON CLIMATE CHANGE

While not an energy regulation or policy per se, the Mayor's Commission on Climate Change goal of seeking net zero GHG emissions by 2045 has implications for the City's energy use. The City declared a climate emergency on December 10, 2019 that included the following resolution:

"The 2040 General Plan Update and Climate Action Plan shall present the City's approach to achieve carbon neutrality by 2045 and emergency actions needed towards emissions elimination by 2030, building on recommendations and analysis from the Mayor's Commission on Climate Change, significant community outreach by City staff, and mitigation measures incorporated from climate experts, community members, and financial advisors."

The Mayor's Commission on Climate Change issued a report in June 2020 with recommendations for how the City, along with the City of West Sacramento, can achieve carbon neutrality by 2045. The report, titled, "Achieving Carbon Zero in Sacramento and West Sacramento by 2045," focuses on recommendations to achieve zero net GHG emissions across both cities through implementing GHG reduction strategies for building energy use, transportation, land use planning, urban forestry, and sustainable food systems (City of Sacramento 2020). It also recommends strategies for community climate resilience. The GHG reduction strategies focus on carbon (CO<sub>2</sub>) emissions from the built environment (i.e., supporting infill growth, electrifying new construction, and electrifying existing buildings with retrofits); mobility (i.e., expanding active transportation and transit networks, and incentivizing ZEVs), and community health and resilience (i.e., sustainable food systems, and increasing the urban tree canopy). City of Sacramento Department of Utilities Energy Management Policy

The City of Sacramento Department of Utilities (DOU) adopted an Energy Management Policy in January 2020. The objectives of the policy were to demonstrate commitment to the community and leadership in the industry, by reducing environmental impacts associated with energy use and establishing a culture that promotes energy efficiency; and to maximize energy performance, reduce operating expenses, and minimize asset risk by actively and responsibly managing energy consumption. The goals of the Energy Management Policy include:

- Consider energy efficiency in all aspects of planning, design, and operation, consistent with sound business practices.
- Encourage procurement of energy-efficient products and services.
- Pursue innovative and cost-effective energy management applications.
- Track effectiveness of initiatives in reducing energy use.
- Provide staff with training and education to recognize, plan, implement, and sustain energy savings from projects and improved procedures and operations.
- Pursue additional funding sources including grants and utility incentives/rebates.
- Periodically review utility rates/tariffs for potential energy savings.
- Pursue collaborative partnerships to maximize energy program benefits.
- Promote cost-effective energy efficiency programs and provide incentives to encourage implementation of energy saving programs.
- Integrate the policies of this Energy Management Policy into the Climate Action Plan as part of the City's overall efforts to address energy management, sustainability, and compliance with state and federal greenhouse gas reductions requirements.

## CITY OF SACRAMENTO DEPARTMENT OF UTILITIES SUSTAINABILITY POLICY

The purpose of the Sacramento DOU Sustainability Policy (City of Sacramento, 2021) is to provide an integrated set of commitments and goals that collectively position the DOU to foster sustainable change and deliver equitable water services. While the focus of the Sustainability Policy is on addressing climate change impacts, the Energy Efficiency focus area of the policy is relevant to energy use:

Focus Area 3. Energy Efficiency – Per City's 2019 Energy Benchmarking Report, the DOU takes only 4 percent of the City's total floor area footprint but it accounts for nearly half of the City's building energy use and energy costs. Optimizing the energy needed for drinking water, storm drainage, and wastewater services will achieve significant cost savings and reduce greenhouse gas emissions and impacts on the environment.

- Support the City in achieving energy reduction goals in alignment with City's carbon neutrality goal by 2045.
- Align department in substantially increasing the use of renewable energy by 2030.
- Ensure the advancement of the DOU Energy Management Policy.
- Increase the use of renewable energy by DOU in alignment with the CARB Scoping Plan.

## SMUD GHG REDUCTION COMMITMENTS

SMUD is subject to the RPS, California's renewable electricity procurement goal of 33 percent renewables by 2020, 60 percent by 2030, and 100 percent by 2045. SMUD's carbon intensity factor for its electricity supply has generally declined over the past decade (The Climate Registry 2021; SMUD, 2022b) and SMUD's goal is to reduce GHG emissions to serve retail customer load to net zero carbon by 2030 (SMUD, 2021), exceeding the State RPS and SB 100 goal of achieving net zero electricity supplies by 2045. SMUD offers various renewable energy programs, including SolarShares, where SMUD shares in the cost of installing and managing solar photovoltaic arrays at properties in its service area.

### 3.5.3 IMPACT ANALYSIS

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant energy impacts.

#### 3.5.3.1 Methodology for Analysis

Project-specific construction and operational information described in the *Project Description* (Chapter 2) regarding equipment, phase duration, and material import/export, as well as energy use and Operations and Maintenance (O&M) activities, were used to estimate the Project's energy use. Default values from the California Emissions Estimator Model (CalEEMod) version 2022.1, which was developed in collaboration with the SMAQMD, were relied upon for other details not available in the Project Description that were necessary to estimate energy use, such as trip lengths. The CalEEMod default that all equipment is diesel fueled was used because the majority of on-site construction equipment used for construction projects is diesel-powered. Likewise, CalEEMod defaults using calendar year statewide average equipment emissions factors, as opposed to tier-specific engine types (i.e., Tier 1, Tier 2, Tier 3, Tier 4 Interim, and Tier 4 final) were used. CalEEMod default average equipment emissions factors were used because they are keyed to CARB's programs for reducing emissions from construction vehicle fleets over time. Default values were overridden when Project information was available or not representative of the Project. CalEEMod assumptions and results can be found in Appendix C.

Energy use from construction activities was estimated for a single well because, while the City intends to carry out its well replacement program over the course of approximately 15 years, a construction schedule for replacement and demolition of the 38 wells has not yet been developed, although a range of one to four wells may be constructed in any given year. This analysis used the modeled energy use from one well to approximate the energy use when multiple wells are constructed at the same time. The representative single well values used for the modeling are summarized in *Section 3.2 Air Quality Table 3.2-4, Table 3.2-5, and Table 3.2-6*. As shown in **Table 3.2-6**, the onsite construction equipment was assumed to be diesel fueled with average engine types.

CalEEMod was used to estimate the amount of greenhouse gas (GHG) emissions from each Project phase, which were in turn used to estimate the amount of fuel the Project would use, based on factors for calculating GHG emissions from fuel (The Climate Registry, 2021). The amount of electricity the Project would use was obtained from the Groundwater Master Plan (City of Sacramento, 2017) and energy use requirements of other similar groundwater treatment facilities.

This analysis then uses this information to evaluate whether the Project's energy use would be significantly wasteful, inefficient, or unnecessary, taking into account available energy supplies; the Project's energy efficiency features; and compliance with applicable standards and policies aimed to reduce energy consumption, including the City's 2016 IO CAP policies, DOU's Energy Management Policy and DOU's Sustainability Policy.

### **3.5.3.2 Thresholds of Significance**

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018, an energy impact would be considered significant if the Project would:

- Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

### **3.5.3.3 Impact Assessment**

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**Impact ENE-1      Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.**

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#### IMPACT ENE-1 ANALYSIS

##### CONSTRUCTION IMPACTS

As explained in the *Project Description* (Chapter 2) construction activities would involve exploratory test well drilling, well drilling and constructing the new well, well equipping and connecting (including construction of additional treatment facilities if needed), and destruction of the existing well. These activities would result in energy use. Construction would result in temporary fuel consumption for heavy-duty diesel and gasoline-powered equipment, portable auxiliary equipment, material delivery trucks, and worker commuter trips.

The amounts of diesel fuel consumed from construction activities associated with each well are presented in **Table 3.5-1**. As explained in *Section 3.5.3.1 Methodology for Analysis*, the amount of fuel the Project would use was estimated based on factors for calculating GHG emissions from fuel (The Climate Registry, 2021) and the Project's GHG emissions, which were estimated in CalEEMod.

**Table 3.5-1: Energy Consumption from Construction – Each Well**

Construction Phase	MTCO <sub>2</sub> e/ year	Diesel gallons/year	Gasoline gallons/year
Site preparation and mobilization	39	3,400	300
Site grading	7	600	30
Well drilling (test, then production)	152	14,100	500
Construction and equipping of test well, then production well	354	30,400	4,100
Site restoration and paving	16	1,400	100
Architectural coating and striping	2	100	100
Demolition of existing well and building	14	1,300	100
Total	583	51,400	5,200

Note: The amount of diesel fuel is based on an average kg CO<sub>2</sub>/gallon factor of 10.45 and the amount of gasoline fuel is based on a factor of 8.78 kg CO<sub>2</sub>/gallon (The Climate Registry 2021).

It is assumed that the City would replace the 38 wells associated with the proposed Project over a period of approximately 15 years. Construction activity per well (including exploratory drilling, well drilling and construction, and well equipping) would be spread out over the course of 9 to 12 months. As shown in **Table 3.5-1**, construction of each well would consume approximately 51,000 gallons of diesel fuel from operation of on-site heavy construction equipment and hauling trips, and over 5,000 gallons of gasoline from worker and vendor trips.

### OPERATION IMPACTS

The Project would consume fuel for vehicle maintenance trips, on-site fuel combustion for landscape maintenance, and indirect emissions associated with the Project's demand for electricity. Electricity demand would vary by water year type, with more groundwater pumping and more associated electricity use occurring in dry hydrologic years. For long-term operational activities, energy use was estimated for the entire build-out of all 38 proposed replacement wells, based on the assumption that eventually all 38 wells would be operating simultaneously. It was conservatively assumed that all 38 wells would require additional treatment facilities for manganese and other potential contaminants. The results are presented in **Table 3.5-2** on an annual basis.

**Table 3.5-2: Energy Consumption from Operations - All Wells**

Source	MTCO <sub>2</sub> e/ year	Energy	Units
Gasoline fuel, mobile and area sources	45	5,200	gallons/year
Diesel fuel, emergency generators	67	6,400	gallons/year
Electricity, dry year wells operation	--	9,740	MWh/year

<b>Electricity, wet year wells operation</b>	--	4,240	MWh/year
<b>Electricity, treatment facilities at wells</b>		16,171	MWh/year

Note: The amount of diesel fuel is based on an average kg CO<sub>2</sub>/gallon factor of 10.45 and the amount of gasoline fuel is based on a factor of 8.78 kg CO<sub>2</sub>/gallon (The Climate Registry 2021).

O&M activities would involve a handful of trips per week, resulting in gasoline consumption from mobile sources. In 2013, seven of the 1,819 vehicles in the City fleet were electric and 40 were gasoline-hybrids; by 2020, the City intended to add 10 more electric vehicles and 13 more gasoline-hybrid vehicles to its fleet (2016 IO CAP). However, as of March 2022, all vehicles used by staff to service the existing wells are gasoline vehicles and it was unknown if fleets would provide electric, hybrid, or other alternative fuel vehicles for O&M activities (Sananikone elec. comm., 2022). Therefore, the values presented in **Table 3.5-2** conservatively assume the vehicle fleet that would perform O&M work at the proposed replacement wells would be powered by gasoline and would adhere to state regulations such as Advanced Clean Cars.

Some well sites would be landscaped, which would require minimal maintenance activities, resulting in gasoline fuel energy use from area sources, shown in **Table 3.5-2**. In addition, the proposed emergency generators at each well would consume diesel fuel. For the purposes of this analysis, it was conservatively assumed each well site would be landscaped and equipped with a 115 hp diesel emergency generator, which would be operated 40 hours per year.

Operation of the proposed wells would consume electricity, which would be provided by SMUD. The proposed Project would not include the use of natural gas. Operational electricity consumption from all 38 proposed wells was modeled for both a dry/critically dry water year type and a wet water year type to understand the range of the proposed Project's electricity consumption. According to the Groundwater Master Plan (City of Sacramento, 2017), under the dry year scenario, the City would extract the maximum amount of groundwater from the 38 wells, and the net increase in energy requirements would be 9,740 MWh per year over the baseline energy requirements of the existing wells. Under a wet water year type, the City would extract the least amount of groundwater and the net increase in energy requirements would be 4,240 MWh per year over the baseline energy requirements of the existing wells (City of Sacramento, 2017). Existing wells 124 (Well 22), 156 (Well 25), and 158 (Well 34) participate in the SMUD SolarShares program (Sananikone elec. comm., 2022). It is assumed that existing participation in the SolarShares program is part of the baseline energy demand of the wells and would continue when those wells are replaced.

Operation of the proposed replacement wells would occur as part of an overall water supply management strategy and would be accompanied by changes in surface water diversions – and associated reductions in electricity use – at the E.A. Fairbairn Water Treatment Plant. The Fairbairn Water Treatment Plant uses approximately 8,500 MWh per year in dry years, compared to approximately 11,300 MWh in wet years according to recent electric billing data at the plant (Sananikone elec. comm., 2022 and DWR, 2021). Thus, in dry years, the Fairbairn Plant's electricity use is about 2,800 MWh per year lower than when the City pulls its full entitlement from the

American River. This 2,800 MWh per year savings would partially offset the proposed Project's 9,740 MWh net annual electricity use from well operations during dry years.

Some replacement wells would require additional treatment facilities for manganese and other constituents. As explained in the *Project Description* (Chapter 2), these facilities would include above-ground filter systems, storage tanks for water and backwash water, and aeration tanks. For manganese removal specifically, the treatment facilities at the wells would include an aeration tank, cell horizontal filter, backwash tank, and a water storage tank. Treatment would involve machinery and instruments that require electricity, such as pressurized filters, pumps, and mixers. Some of the equipment would be required to run up to 24 hours per day to maintain treatment system operations. Total electricity consumption for the treatment facilities is estimated to be 425,000 kWh per year per well, or 16,171 MWh per year if all 38 wells require the larger treatment facilities.

The proposed Project would adhere to all applicable energy conservation measures, including Advanced Clean Cars and the In-Use Off-Road Diesel Vehicles regulations, and applicable measures adopted under the 2016 IO CAP and DOU's Energy Management Policy and Sustainability Policy, including fleet efficiency pledges and providing staff with training to implement energy savings. Vehicles used for construction would comply with CAFE fuel economy standards, which would result in more efficient use of transportation fuels and thus lower consumption. Because of the high cost of fuels, contractors have a built-in incentive to minimize energy use and use fuel efficient equipment. The proposed Project would purchase electricity from SMUD, which is committed to transitioning to sources of energy such as biomass and biowaste, geothermal, hydroelectric, solar, and wind. As SMUD transitions to electricity sources that are less energy intensive, the indirect energy use from the proposed Project would also decline. Therefore, the proposed Project would not cause a significant environmental impact due to inefficient energy use.

The proposed Project is needed to solidify the capacity and strategic use of groundwater to improve water supply reliability, diversify the City's supply portfolio, and to promote conjunctive use of the City's water supplies in response to current economic, regulatory and water quality constraints as well as variations in hydrologic and climate conditions affecting reliability of the City's surface water supply. Although it would consume electricity, gasoline, and diesel fuel, the Project would not cause a significant environmental impact from unnecessary or wasteful energy use.

### IMPACT ENE-1 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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**Impact ENE-2      Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**

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**IMPACT ENE-2 ANALYSIS**

The applicable plans are the City of Sacramento DOU Energy Management Policy and the City of Sacramento DOU Sustainability Policy, which are described above in *Section 3.5.2.3 Local Policies and Regulations*.

The DOU adopted the Energy Management Policy in January 2020 and implements it on an ongoing basis. The City would incorporate feasible applicable strategies from the Energy Management Policy into well design and O&M procedures. Applicable goals and strategies include:

- Consider energy efficiency in all aspects of planning, design, and operation, consistent with sound business practices.
- Encourage procurement of energy-efficient products and services.
- Pursue innovative and cost-effective energy management applications.
- Track effectiveness of initiatives in reducing energy use.
- Provide staff with training and education to recognize, plan, implement, and sustain energy savings from projects and improved procedures and operations.

The DOU adopted the Sustainability Policy in October 2021, recognizing that optimizing the energy needed for drinking water, storm drainage, and wastewater services would achieve significant cost savings and reduce greenhouse gas emissions and impacts on the environment. The City would incorporate feasible applicable strategies from the Sustainability Policy into well design and O&M procedures. Applicable goals include:

- Support the City in achieving energy reduction goals in alignment with City's carbon neutrality goal by 2045.
- Align department in substantially increasing the use of renewable energy by 2030.
- Ensure the advancement of the DOU Energy Management Policy.
- Increase the use of renewable energy by DOU in alignment with the CARB Scoping Plan.

With incorporation of all applicable standard measures from the Energy Management Policy and Sustainability Policy into well design and O&M procedures, the proposed Project would not conflict with either policy.

While increased groundwater pumping would increase operational energy use, as explained under *Impact ENE-1 Analysis* above, the Project would not involve wasteful or inefficient energy consumption. Therefore, the Project would not conflict with the City DOU Energy Management

Policy of 2020 or the Sustainability Policy of 2021. Thus, the proposed Project would not conflict with or obstruct an applicable State or local plan for renewable energy or energy efficiency. Impacts would be less than significant, and no mitigation would be required.

### IMPACT ENE-2 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

#### **3.5.3.4 Energy Mitigation Measures**

No mitigation measures are required.

#### **3.5.3.5 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Master EIR found that the 2035 General Plan itself would not directly result in changes to energy consumption patterns. The 2035 General Plan includes numerous policies and programs that would promote energy conservation, renewable energy generation, and Vehicle Miles Traveled (VMT) reduction. However, development and land use activities that occur would consume energy. Though total annual electricity consumption in the City is expected to increase, the generation of renewably sourced electricity is also expected to increase. For these reasons, impacts to energy resources within the City's planning area are less than significant.

The 2035 General Plan Master EIR is incorporated by reference and as a City project, the proposed Project adheres to the City's policies, such as the policies presented in the *Regulatory Framework* (Section 3.5.2.3). The Project was adequately addressed in the 2035 General Plan Master EIR analysis and thereby found to have a cumulatively less than significant impact to energy resources.

Cumulative impacts related to the wasteful, inefficient, or unnecessary consumption of energy during construction and operation (*Impact ENE-1*) and the potential for the Project to conflict with or obstruct adopted energy conservation plans or violate energy efficiency standards (*Impact ENE-2*) would be the same as the Project-specific context. Energy consumption effects related to individual projects are localized to the utility service area and localized fuel availability, and would not combine with similar effects in other locations. Because the Project would be served by SMUD, the geographic scope of the cumulative impacts on energy resources encompasses the SMUD service area. If the proposed Project would result in a substantial impact on SMUD energy supplies that would require additional capacity, or would exceed SMUD's ability to meet peak demand, a significant cumulative impact could result.

Overall electric supply is adequate; however, temporary shortfalls could occur in SMUD's service area (and other portions of the statewide grid) during temporary periods of high peak demand. Peak demands occur in SMUD's service area during the summer's hot weather conditions when

demand for indoor air conditioning rises. In the future, electrification of buildings and increased use of electricity for transportation would add to SMUD's peak demand.

With an increasing number of hot-weather days and the move toward electrification of buildings and vehicles, meeting demand during peak periods is a key planning consideration for the utility. SMUD is actively planning to flatten peak demands by encouraging and deploying energy efficiency and conservation measures within its service area. Through a combination of increases in efficiency and deployment of power management strategies, including demand response, and power imports during peak periods, SMUD expects to maintain sufficient capacity to provide power to its service area, including the proposed well replacement Project, at least through 2050 (SMUD, 2019). Therefore, the Project's incremental contribution to the cumulative impact on electrical supply would not be cumulatively considerable.

As described in the impact discussion above (*Impact ENE-1, Impact ENE-2*), energy use in Project construction and operation would not be inefficient, wasteful, or unnecessary in nature, nor would the Project conflict with an applicable plan or policy. Therefore, the contribution of the proposed Project to cumulative impacts on energy resources in the study area would be minimal, as assessed by the criteria listed in Appendix G and Appendix F of the *CEQA Guidelines*. Energy for Project operation is not expected to exceed SMUD's capacity for power generation, and because energy demand from the wells would be continuous, and not subject to peaking, energy use is not projected to exceed SMUD's ability to meet peak demands. The cumulative impact is less than significant.

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### *3.5.5 ENERGY ACRONYMS AND ABBREVIATIONS*

ARFVTP	Alternative and Renewable Fuels and Vehicle Technology Program
AFVs	alternative fuel vehicles
AB	Assembly Bill
CARB	California Air Resources Board
DWR	California Department of Water Resources
CalEEMod	California Emissions Estimator Model
CEC	California Energy Commission
CPUC	California Public Utilities Commission
CO <sub>2</sub>	Carbon dioxide
2016 IO CAP	City of Sacramento Internal Operations Climate Action Plan
CAP	City of Sacramento's Phase 2 Climate Action Plan
CAFE	Corporate Average Fuel Economy
DOT	Department of Transportation
EAP	Energy Action Plan
EPAct	Energy Policy Act of 1992

GWh	gigawatt hours
GHG	greenhouse gas
IEPR	Integrated Energy Policy Report
IEA	International Energy Agency
LEV	Low-Emission Vehicle
MWh	megawatt-hours
MTCO <sub>2</sub> e	Metric tons of carbon dioxide equivalents
MG	million gallons
NHTSA	National Highway Traffic and Safety Administration
NO <sub>x</sub>	nitrogen
O&M	Operations and Maintenance
PM	particulate matter
RPS	Renewable Portfolio Standard
SMUD	Sacramento Municipal Utility District
SB	Senate Bill
SAF Plan	State Alternative Fuels Plan
DOE	United States Department of Energy
DOT	United States Department of Transportation
US EPA	United States Environmental Protection Agency
ZEV	zero-emission vehicles

## **3.6 GEOLOGY AND SOILS**

This section evaluates the potential geological and soil impacts associated with implementation of the proposed Project.

### ***3.6.1 ENVIRONMENTAL SETTING***

#### ***3.6.1.1 Site Geology***

The City is located in the Great Valley geomorphic province of California, which is a flat, alluvial plain approximately 50 miles wide and 400 miles long in central California (City of Sacramento, 2014a). The Great Valley includes the Sacramento Valley, which is drained by the Sacramento River in the north, and the San Joaquin Valley drained by the San Joaquin River in the south. To the east is the Sierra Nevada Range, with the Tehachapi Mountains to the south, the Coastal Range to the west, and the Cascade Range in the north. The Great Valley has thick sequences of alluvial sediments derived primarily from erosion of the Sierra Nevada Range and to a lesser extent, the Coastal and Cascade Ranges (City of Sacramento, 2014a).

The topography of the City of Sacramento is relatively flat with a gradual slope rising from an elevation of sea level in the southwestern portion of the City to approximately 75 feet above sea level in the northeastern portion (City of Sacramento, 2014a).

#### ***3.6.1.2 Faults and Seismicity***

There are no Alquist-Priolo Fault Rupture Hazard Zones or any known active faults near the City (CGS, 2016 and City of Sacramento, 2014b). The greatest earthquake threats come from earthquakes along the San Andreas, Calaveras, and Hayward faults, which are further than 50 miles away (City of Sacramento, 2014b). There are other regional faults found over 25 miles away from the City, including the Great Valley fault along with the Concord-Green Valley fault and Hunting Creek-Berryessa fault at approximately 40 miles from the City (City of Sacramento, 2014a).

#### ***3.6.1.3 Groundshaking***

Groundshaking caused by any of Northern California's major faults would cause shaking in the City with an intensity of 5 to 6 moment magnitude ( $M_w$ ) (City of Sacramento, 2014b). The other regional faults would produce a 6.5 to 6.8  $M_w$  earthquake (City of Sacramento, 2014a).

The groundshaking hazard estimated within the Project area using the California Geological Survey (CGS) Ground Motion Interpolator is a peak ground acceleration of 0.197g with a 10 percent probability of exceedance in 50 years (CGS, 2008). Based on the Modified Mercalli Intensity Scale, this peak ground acceleration would result in an Intensity Value of VI, strong shaking, which has potential for light damage. The highest intensity of groundshaking that would occur in the City would be a VI to VII on the Modified Mercalli Intensity Scale caused by a 7.9  $M_w$  earthquake from the San Andreas Fault or a  $M_w$  6.6 earthquake from the Dunnigan Hills fault, which are the two

closest active faults to the City (City of Sacramento, 2014b). The City is generally subject to minor groundshaking (City of Sacramento, 2014b)

### **3.6.1.4 Liquefaction and Lateral Spreading Potential**

The City is subject to minor liquefaction (City of Sacramento, 2014b). Areas susceptible to liquefaction are primarily those in proximity to the Sacramento River such as the Pocket and Natomas areas (City of Sacramento, 2014a). The CGS Earthquake Zones of Required Investigation (2016) does not show any potential liquefaction areas within the City.

### **3.6.1.5 Landslides and Slope Stability**

Because the City is flat, slope stability and erosion are not a substantial hazard to people and property nor is the City subject to seismically-induced landslides (City of Sacramento, 2014b). The CGS Earthquake Zones of Required Investigation (2016) also does not show any potential landslide areas within the City.

### **3.6.1.6 Expansive Soils**

There are over 30 individual soil types mapped in the City by the Natural Resources Conservation Service (City of Sacramento, 2014a). The predominant soils, over 60 percent of the City's area, include San Joaquin, Clear Lake, Galt, Consumnes, and Sailboat soils (City of Sacramento, 2014a). Most of the City is underlain by soils that exhibit low expansion (shrink/swell properties) (City of Sacramento, 2014).

### **3.6.1.7 Subsidence**

Subsidence is the lowering of the ground surface and may be caused by consolidation of underlying materials or the oxidation of peaty soils. Consolidation occurs when water or other liquid in the soil's pore spaces is removed, releasing capillary pressure and causing the soil structure to collapse. Subsidence resulting from the oxidation of peaty soils occurs when the peat comes into contact with air and oxidizes, resulting in a reduction of peat volume and subsequently land subsidence. Land subsidence is a potential hazard in the City, particularly in regard to groundwater withdrawal (City of Sacramento, 2014b). Land subsidence can be either elastic or inelastic. Elastic land subsidence is typically small, reversible lowering and raising of the ground surface and can be cyclical with seasonal changes year to year. Inelastic subsidence is considered permanent.

Land subsidence is not known to be historically or currently significant in the South American Subbasin. Previous studies of land subsidence in the South American Subbasin have shown small-to-zero amounts of subsidence having occurred (NDGSA et al., 2021). In the North American Subbasin, limited land subsidence due to groundwater pumping was documented up to the early 1990s, but there were no documented impacts associated with the subsidence. Since then, the subsidence has been negligible (SGAGSA et al., 2021).

### **3.6.1.8 Paleontology**

The proposed well sites are located within three different geologic formations: artificial fill, Holocene-age deposits, and Pleistocene-age Riverbank Formation. Artificial fill, which is disturbed, and Holocene-age deposits, which are too young to contain fossils, both have a low potential for containing paleontological resources. The Pleistocene-age Riverbank Formation has a moderate potential to contain fossils. Of the 38 well sites, 17 are in Holocene-age deposits and thus have low potential to contain fossils, while 21 are in Pleistocene-age Riverbank Formation, which has a moderate potential to contain fossils. Some sites in both formations may be overlain by artificial fill (Paleo Solutions, 2020).

## **3.6.2 REGULATORY FRAMEWORK**

This section describes laws and regulations at the state and local level that may apply to the Project. No federal policies and regulations relevant to geology, soils, or seismicity resources apply to the Project.

### **3.6.2.1 State Policies and Regulations**

#### **ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT**

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed in 1972 after the destructive 1971 San Francisco earthquake, to minimize losses and human harm from developments and structures during surface fault ruptures. The Alquist-Priolo Act defines an active fault as a fault that has ruptured in the last 11,000 years and requires the State Geologist to determine earthquake fault zones for surface traces of active faults. The Alquist-Priolo Act prohibits construction of buildings for human occupancy within 50 feet of an identified fault.

#### **SEISMIC HAZARDS MAPPING ACT**

The Seismic Hazards Mapping Act was passed in 1990 (Public Resources Code, Chapter 7.8, Section 2690-2699.6) to address non-surface fault rupture earthquake hazards such as liquefaction and seismically induced landslides. The act also directs the California Geological Survey to identify and map areas susceptible to earthquake-induced landslides, liquefaction, and ground shaking. The intent of the act is to reduce the risk to public safety and minimize the loss of life and property by providing information to help control and plan construction and development.

#### **GENERAL PERMIT FOR DISCHARGES OF STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITY**

Control of erosion and sedimentation in stormwater discharges from construction sites is regulated by the State Water Resources Control Board (SWRCB) in their General Permit for Discharges of Storm Water Associated with Construction Activity, National Pollutant Discharge Elimination System (NPDES) Order No. CAS000002, Order No. 2009-0009-DWQ (Construction General Permit). Effective

July 1, 2010, the amended Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) and monitoring program for construction projects that result in one or more acres of land disturbance. The SWPPP must include Best Management Practices (BMPs) that will be implemented during construction to control pollutants in stormwater discharges from the construction site; a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Because the Project would disturb more than one acre, coverage under the Construction General Permit would be required and one or more SWPPPs would be developed and implemented for the various stages of the Project over time.

### **3.6.2.2 Local Policies and Regulations**

#### CITY OF SACRAMENTO 2035 GENERAL PLAN

The City has identified the following goals and policies in the City's 2035 General Plan:

**GOAL EC 1.1: Hazard Risk Reduction.** Protect lives and property from seismic and geologic hazards and adverse soil conditions.

- **Policy EC 1.1.1: Review Standards.** The City shall regularly review and enforce all seismic and geologic safety standards and require the use of best management practices (BMPs) in site design and building construction methods.
- **Policy EC 1.1.2: Geotechnical Investigations.** The City shall require geotechnical investigations to determine the potential for ground rupture, groundshaking, and liquefaction due to seismic events as well as expansive soils and subsidence problems on sites where these hazards are potentially present.

#### CITY OF SACRAMENTO GRADING ORDINANCE

**City Code Section 15.88 Grading, Erosion and Sediment Control.** The grading ordinance is enacted for the purpose of regulating grading on property within the city limits of the City to safeguard life, limb, health, property and the public welfare; to avoid pollution of watercourses with nutrients, sediments, or other materials generated or caused by surface water runoff; to comply with the city's national pollution discharge elimination system (NPDES) Permit No. CA0082597, provision D2, issued by the Central Valley Regional Water Quality Control Board; and to ensure that the intended use of a graded site within the city limits is consistent with the City general plan, any specific plans adopted thereto and all applicable City ordinances and regulations. The grading ordinance is intended to control all aspects of grading operations within the city limits of the City. (Prior code § 9.31.1502)

### 3.6.3 IMPACT ANALYSIS

#### 3.6.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to geological resources. Geological analysis is based on information from geologic and seismic databases and the City of Sacramento 2035 General Plan. This information was used to identify potential impacts on workers, the public, or the environment.

The proposed Project would be regulated by various laws, regulations, and policies summarized in the *Regulatory Framework* (Section 3.6.2). Project compliance 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.

The paleontological analysis identifies the potential to encounter paleontological resources (e.g., plant, animal, or invertebrate fossils or microfossils) during excavations associated with the proposed Project. A potentially significant impact on paleontological resources would occur if fossil resources were damaged or destroyed during construction.

#### 3.6.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018 an impact associated with geology, soils and seismicity would be considered significant if the Project would:

- Directly or indirectly cause potential adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42
  - Strong seismic ground shaking
  - Seismic-related ground failure, including liquefaction
  - Landslides
- Results in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.
- Directly or indirectly destroy a unique paleontological resource or site or unique geographic feature.

### **3.6.3.3 Criteria Requiring No Further Evaluation**

The Initial Study determined that the Project would not have significant impacts associated with the following criteria:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. There are no Alquist-Priolo Fault Zones in the City so there would be no impact associated with the rupture of a known fault (City of Sacramento 2015).
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water. The proposed Project does not entail construction of septic or other wastewater disposal systems; therefore, this impact is not applicable to the project.

### **3.6.3.4 Impact Assessment**

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**Impact GEO-1      Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic groundshaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides.**

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#### IMPACT GEO-1 ANALYSIS

##### GROUNDSHAKING

Groundshaking hazards for the City are among the lowest in the state due to the absence of active faults in the area (City of Sacramento, 2014b) so the probability of groundshaking affecting any facilities during operation or materials during construction is remote. Additionally, through implementation of 2035 General Plan Policies EC 1.1.1 and EC 1.1.2, the City keeps up-to-date records of seismic conditions, enforces the most current building standards, and requires that site-specific geotechnical analyses be prepared, and that geotechnical report recommendations are implemented. These policies protect City residents and structures from seismic hazards. The potential for groundshaking is low and geotechnical investigations and design considerations would be implemented consistent with local and state policies, making the likelihood of the Project causing substantial adverse effects less than significant.

### SEISMIC-RELATED GROUND FAILURE

Areas susceptible to liquefaction are primarily those in proximity to the Sacramento River such as the Pocket and Natomas where Wells 15, 20, and 39 are located. Similar to the discussion for Groundshaking, 2035 General Plan policies EC 1.1.1, EC 1.1.2 would be adhered to. Because all facilities would be designed to meet applicable City and California Building Code requirements, liquefaction impacts would be limited. The potential for liquefaction or other seismic-related ground failure is low making the likelihood of the Project causing substantial adverse effects less than significant.

### LANDSLIDES

All well sites are on level terrain, and therefore, would not be at risk for potential landslides during construction, deconstruction, or operation. The potential for landslides is low making the likelihood of the Project causing substantial adverse effects less than significant.

### IMPACT GEO-1 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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### **Impact GEO-2      Result in substantial soil erosion or the loss of topsoil.**

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#### IMPACT GEO-2 ANALYSIS

### CONSTRUCTION IMPACTS

Although all construction projects have the potential to result in erosion, construction of all facilities and deconstruction of existing wells would be required to comply with the State Construction General Permit and City's Grading Ordinance, which requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) for disturbances greater than one acre and an Erosion and Sediment Control Plan respectively before the start of any grading activity. These plans require the implementation of Best Management Practices to control erosion and sediment in stormwater discharges. Compliance with these regulations and requirements limit the Project's potential to result in substantial soil erosion or the loss of topsoil. Additionally, 2035 General Plan Policy EC 1.1.2 requires that projects within the City include preparation of a geotechnical investigation to determine site-specific seismic and soil characteristics and to make recommendations for maintaining stable site conditions that must be incorporated in project design. Further, 2035 General Plan Policy ER 1.1.7 requires that necessary erosion control measures are used during site development activities for all projects in the City. Compliance with State and local regulations would limit the risk of substantial soil erosion or loss of topsoil to insignificant

amounts. Therefore, impacts from construction of the proposed Project would be less than significant.

### OPERATION IMPACTS

Once construction is complete, operation of all facilities would not result in increased soil erosion or loss of topsoil because ongoing activities would be limited to the developed well site. Regularly scheduled maintenance visits would occur at each site but would not cause degradation to soils within the well site. Therefore, impacts from operation of the proposed Project would be less than significant.

### IMPACT GEO-2 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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**Impact GEO-3      Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.**

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### IMPACT GEO-3 ANALYSIS

#### CONSTRUCTION IMPACTS

Because topography of the City is flat, slope stability and other soil stability hazards are typically not an issue for construction of facilities and the City is mostly underlain by soils that exhibit low expansion (shrink/swell) properties (City of Sacramento, 2014b). Additionally, adherence to the California Building Code and City policies (such as Policies EC 1.1.1 and EC 1.1.2) requiring evaluation of soil would result in the maximum practicable protection available for users of buildings and infrastructure and their associated trenches, slopes, and foundations. During the deconstruction of existing wells, no additional construction would occur that could potentially cause unstable soils or impact soil stability. Compliance with California Building Code and City policies would ensure less than significant impacts from unstable soils.

#### OPERATION IMPACTS

As the topography of the City is flat, slope stability and other soil stability hazards are not typically an issue for well operations. However, groundwater pumping could exacerbate unstable soil conditions through subsidence if not managed correctly. In accordance with the Sustainable Groundwater Management Act (SGMA), the Project area in the Sacramento region is governed by two Groundwater Sustainability Plans (GSPs) (one each covering the North American and South

American Subbasins) that are implemented to achieve groundwater sustainability in the region through the implementation of groundwater management actions and projects (see detailed description in *Section 3.9 Hydrology and Water Quality*).

Currently, the City extracts groundwater for water supply, and under the proposed Project, would continue to withdraw groundwater to meet the needs of the City while implementing GSP projects and/or management actions in compliance with SGMA. Based on the groundwater modeling analysis (Appendix E), pumping under the proposed Project would result in groundwater elevations above the minimal thresholds identified in the GSPs, and would therefore, by definition under SGMA, avoid significant and undesirable results in the subbasins for applicable sustainability indicators, one of which includes inelastic land subsidence, for both the North and South American Subbasins.

Thus, implementation of the projects and management actions identified in the GSPs, including SGMA-required monitoring and reporting (see **Table 3.9-3** and **Table 3.9-5** in Section 3.9), would ensure that pumping would not create undesirable results related to inelastic land subsidence. Further discussion of groundwater withdrawal operations can be found in the *Project Description* (Chapter 2) and further analysis of the change in operations and effects on groundwater can be found in the *Hydrology and Water Quality* section (Section 3.9). Because the purpose of the Project is to better manage groundwater in a sustainable fashion, the risk of subsidence within the City would not be substantially altered as a result of the proposed Project. Therefore, the proposed Project would have less than significant impacts on subsidence.

### IMPACT GEO-3 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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**Impact GEO-4      Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.**

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### IMPACT GEO-4 ANALYSIS

#### CONSTRUCTION IMPACTS

As stated above, most of the City is underlain by soils that exhibit low expansion. City requirements (2035 General Plan Policies EC 1.1.1 and EC 1.1.2) for evaluation of soil conditions before construction would ensure that unsuitable soil conditions at any well sites or sewer and water lateral connections are identified and that measures to eliminate inappropriate soil conditions are implemented. Adherence to California Building Codes requirements and compliance with City policies would occur during construction and limit potential impacts to less than significant levels.

OPERATION IMPACTS

Potential impacts of expansive soils on wells and facilities would be assessed during the design and construction phase of the Project. Adherence to California Building Codes and City policies would ensure long-term safety of any facilities and structures at the well site. The City would evaluate soil conditions prior to construction and adhere to California Building Codes and City policies, which would ensure impacts are less than significant.

IMPACT GEO-4 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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**Impact GEO-5      Directly or indirectly destroy a unique paleontological resource or site or unique geographic feature.**

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## IMPACT GEO-5 ANALYSIS

CONSTRUCTION IMPACTS

Project construction has the potential to damage important paleontological resources. Surface grading or shallow excavations in artificial fill (which may overlie older intact formations) or in sediments with low potential for fossils are unlikely to impact resources. While well drilling could damage fossils, the well shaft is limited in aerial extent (8 to 16 inches in diameter), which limits the potential for damage. Potential for adverse impacts is primarily limited to excavations or grading in previously undisturbed deposits, particularly of undisturbed Pleistocene-age Riverbank formation (Paleo Solutions, 2020). Excavation is anticipated for construction of underground pipelines for water and sewer connections and grading would be associated with site preparation requiring areas of cut and fill. Deconstruction of existing wells is not anticipated to require extensive excavation or grading activities. Without mitigation, the Project has the potential for significant impact to occur when excavating or grading in areas of undisturbed Pleistocene-age Riverbank formation. **Mitigation Measure GEO-1** (described in detail in Section 3.6.3.5) would be implemented to ensure compliance with City Policies and if any fossils are encountered the find would be preserved and documented preventing the direct or indirect destruction of a unique paleontological resource or unique geographic feature. **Mitigation Measure GEO-1** reduces the potential for significant impact by educating construction personnel and providing guidance for proper handling and assessment of paleontological resources. If a resource is evaluated and determined to be of unique paleontological character **Mitigation Measure GEO-1** provides additional steps for monitoring, documentation, assessment, and/or avoidance to ensure the resources or site is not destroyed. With implementation of **Mitigation Measure GEO-1**, the Project's construction impacts to paleontological resources would be less than significant.

### OPERATION IMPACTS

No excavations would occur during the operation of the Project, thus operations would have a less than significant impact.

### IMPACT GEO-3 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure GEO-1

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

### **3.6.3.5 Mitigation Measures**

#### MITIGATION MEASURE GEO-1: UNANTICIPATED FOSSIL DISCOVERY

To reduce the potential for impacts to paleontological resources the following procedures shall be adhered to for all ground disturbing activities.

Prior to the start of construction, a qualified paleontologist shall be retained to prepare a paleontological resources Worker Environmental Awareness Program (WEAP) training. The WEAP training will include the types of fossils that may be encountered, the procedures to be followed if unanticipated paleontological resources are unearthed at the Project site, contact information for the paleontological personnel, and the regulatory requirements for the protection of paleontological resources. All earthmoving personnel and their supervisors shall receive the WEAP training prior to beginning work on the site.

In the event of unanticipated paleontological resource discoveries, all activities in the vicinity of the discovery (50-foot buffer) shall be temporarily halted until a qualified paleontologist has documented and evaluated the resource(s), completed the appropriate mitigation and treatment of the resource(s), and authorized work in the discovery area to resume. If determined to be significant, the paleontological resource(s) shall be collected and transferred to a paleontological laboratory for preparation, identification, and analysis, and curated at an accredited fossil repository. If paleontological resources are discovered, and upon conclusion of ground disturbing activities, a paleontological mitigation report shall be prepared that documents the dates of field work, methods, fossil analyses, significance evaluations, conclusions, and an itemized list of specimens.

### **3.6.3.6 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Master EIR found that cumulative impacts to geology, soil, and paleontological resources within the City's planning area are less than significant when the General Plan Policies are implemented. The 2035 General Plan Master EIR is incorporated by reference and the proposed Project is consistent with the 2035 General Plan Master EIR and adheres to the City's policies. The Project's impacts when considered within the impacts of the 2035

General Plan would be less than significant and the Project's contribution to these impacts would not be cumulatively considerable. Thereby the proposed Project would have a less than significant cumulative impact on geologic, soil, and paleontological resources.

### 3.6.4 REFERENCES

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- Northern Delta Groundwater Sustainability Agency, Omochumne – Hartnell Water District, Reclamation District 551, Sacramento Central Groundwater Authority, Sacramento County, and Sloughhouse Resource Conservation District (NDGSA et al.). 2021. South American Subbasin Groundwater Sustainability Plan. Final.
- Paleo Solutions. 2020. Paleontological Resources Constraints Analysis for the City of Sacramento Groundwater Master Plan Project, Sacramento County, California
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### 3.6.5 GEOLOGY AND SOILS ACRONYMS AND ABBREVIATIONS

Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
BMPs	Best Management Practices
CGS	California Geological Survey
NPDES	National Pollutant Discharge Elimination System
SWRCB	State Water Resources Control Board
SWPPP	Stormwater Pollution Prevention Plan
SGMA	Sustainable Groundwater Management Act
WEAP	Worker Environmental Awareness Program

## 3.7 GREENHOUSE GAS EMISSIONS

This section describes greenhouse gases, global climate change, and applicable regulations that seek to reduce the levels of greenhouse gases in the earth's atmosphere and adapt to the effects of climate change. This section presents the estimated greenhouse gas (GHG) emissions related to construction and operation of the proposed project. It then evaluates the significance of the project's GHG emissions against applicable thresholds and identifies feasible mitigation measures, as appropriate. For the purpose of this analysis, the study area includes the GHG emissions in the City's water service area, which overlies the North American and South American Subbasins of the Sacramento Valley Groundwater Basin in Sacramento County.

### 3.7.1 ENVIRONMENTAL SETTING

The discussion below defines the terms used in the GHG evaluation and describes the conditions of the study area. It relies on publicly available information from the Sacramento Metropolitan Air Quality Management District (SMAQMD) CEQA Guidance & Tools (SMAQMD 2010, revised 2021) and the City of Sacramento Climate Action Plan (CAP) for Internal Operations (IO) (City of Sacramento, 2016).

#### 3.7.1.1 Definitions and Fundamentals

##### GHG TERMINOLOGY

*Global warming* and *climate change* are terms that describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century, the effects on weather variability, and the impact to natural resources and society.

##### GREENHOUSE EFFECT

The *greenhouse effect* is the phenomenon that occurs when solar radiation enters earth's atmosphere. Part of the solar radiation is reflected back to space. However, a portion of it is absorbed by the earth's surface, then emitted in low-frequency infrared radiation, which is absorbed by GHGs in earth's atmosphere, raising the temperature of the surface of the earth, similar to the way a greenhouse captures and retains warmth from the sun.

*Greenhouse gases* are the gases on earth's atmosphere that trap low-frequency infrared radiation that is emitted from earth's surface. Some GHGs occur naturally; however, human activities have led to an increase in the concentration of certain GHGs since the mid-20<sup>th</sup> century. GHGs of primary concern from human activities are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated gases (US EPA, 2022):

- **Carbon dioxide (CO<sub>2</sub>):** Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from

the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH<sub>4</sub>):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous oxide (N<sub>2</sub>O):** Nitrous oxide is emitted during agricultural, land use, and industrial activities; combustion of fossil fuels and solid waste; as well as during treatment of wastewater.
- **Fluorinated gases:** These gases are synthetic, powerful GHGs that are emitted from a variety of household, commercial, and industrial applications and processes. Fluorinated gases (especially hydrofluorocarbons) are sometimes used as refrigerants, and in industrial processes such as aluminum and semiconductor manufacturing as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons, hydrochlorofluorocarbons, and halons).

### GLOBAL WARMING POTENTIAL

*Global Warming Potential (GWP)* compares the global warming impacts of different gases. Two ways in which GHGs differ are their ability to absorb energy (their "radiative efficiency"), and how long they stay in the atmosphere (also known as their "lifetime"). GWP is a measure of how much heat the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO<sub>2</sub>. The larger the GWP, the more that gas warms the earth compared to CO<sub>2</sub> over the given time period. The time period usually used for GWPs is 100 years. CO<sub>2</sub>, by definition, has a GWP of 1 because it is the gas being used as the reference. CH<sub>4</sub> has a GWP of 27-30 over 100 years. CH<sub>4</sub> lasts about a decade in earth's atmosphere on average, which is less time than CO<sub>2</sub>; however, CH<sub>4</sub> absorbs more energy than CO<sub>2</sub>, giving it a higher GWP value. N<sub>2</sub>O has a GWP of 273 over 100 years; it can remain in the atmosphere for more than 100 years, on average. Fluorinated gases are sometimes called high-GWP gases because they trap substantially more heat than CO<sub>2</sub>; the GWPs for these gases can be in the thousands or tens of thousands. (US EPA, 2022).

### CARBON DIOXIDE EQUIVALENT

*Carbon dioxide equivalent* is a unit of measure to compare the emissions from various GHGs based on their GWP. Carbon dioxide equivalents are commonly expressed as metric tons of carbon dioxide equivalents (MTCO<sub>2</sub>e). The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by its associated GWP (US EPA, 2022).

### GHG MITIGATION

*GHG Mitigation*, in the context of global climate change, not necessarily CEQA, refers to reducing local GHG emissions, which are part of the overall cumulative global carbon footprint contributing to climate change. *GHG Adaptation* refers to preparing for how the City can respond and adapt to

changes that are likely already occurring and will likely continue to occur (City of Sacramento, 2016).

### **3.7.1.2 Study Area Setting**

Climate change is a global problem. GHGs are global pollutants, unlike criteria pollutants and toxic air contaminants, which have relatively short atmospheric lifetimes (about 1 day). GHGs have long atmospheric lifetimes (1 year to several thousand years) and persist in the atmosphere for time periods long enough to cause them to be dispersed around the globe. Worldwide emissions of GHGs in 2020 were 49.8 gigatons CO<sub>2</sub>e. The United States accounts for an estimated 11.3 percent share of total worldwide emissions (Oliver, 2022).

California's annual GHG emissions totaled 418.2 million MTCO<sub>2</sub>e in 2019. The transportation sector was the largest emitter, accounting for 41 percent, followed by the industrial sector at 24 percent. In-state electricity accounts for 9 percent of Statewide GHG emissions, while electrical imports account for 5 percent. The residential sector is responsible for 8 percent of Statewide GHG emissions, the commercial sector for 6 percent, and the agricultural sector for 7 percent (CARB, 2022).

While GHG emissions are an inherently cumulative impact, the study area for the purposes of estimating GHG emissions from the proposed Project is defined as the City's water service area because this geographic scope is where the proposed Project's emissions and potential mitigation measures can be evaluated in the context of existing community-wide emissions, which contribute to the larger global issue.

The IO CAP (City of Sacramento, 2016) quantified annual GHG emissions generated by the City's internal operations. In 2013, the year in which emissions were quantified and reported in the 2016 IO CAP, the City's internal operations resulted in an estimated 59,098 MTCO<sub>2</sub>e. GHG emissions were reported for six categories of internal operations:

- Building energy use resulted in 15,011 MTCO<sub>2</sub>e, comprising the largest percentage of the City's total annual internal operations emissions, 25 percent of annual GHG emissions.
- The City vehicle fleet contributed approximately 14,081 MTCO<sub>2</sub>e, accounting for 23 percent. The City operates on-road vehicles including maintenance trucks, vans, solid waste collection vehicles, police and fire vehicles, and light duty passenger vehicles. In addition, several alternative fuel on-road vehicles were in use in 2013, including 7 electric vehicles, 40 gasoline-hybrids, and 266 flex fuel vehicles that run on ethanol-gasoline blended fuel (E85).
- The "waste-in-place" category (emissions from the former City landfill at Sutter's Landing consisting primarily of methane as a result of anaerobic decomposition) accounted for 23 percent of annual emissions.
- Water management consumed 47.4 GWh of electricity, resulting in emissions of 12,043 MTCO<sub>2</sub>e, comprising 20 percent of the City's total municipal GHG emissions in 2013. The City

provides several water-related utility services to residents and businesses in the form of water intake, treatment, and distribution; wastewater collection and conveyance; and stormwater drainage. Pumping and other activities associated with these water-related services consume electricity, which in turn emits GHGs.

- In 2013, the operation of streetlights and traffic signals in the City required approximately 19.2 GWh of electricity and resulted in 4,870 MTCO<sub>2</sub>e in GHG emissions, which contributed 8 percent to annual emissions.
- Off-road vehicles and equipment such as construction equipment, off-road utility vehicles, and landscaping equipment, resulted in GHG emissions of 862 MTCO<sub>2</sub>e, in 2013 due to the consumption of diesel, propane, gasoline, and electricity. Off-road vehicles accounted for 1 percent of City emissions.

### **3.7.1.3 Climate Change Impacts**

According to the IO CAP (City of Sacramento, 2016), warming average global temperatures could result in a variety of environmental effects locally and globally. Potential risks for the Sacramento region could include:

- More frequent and intense heat waves, and hotter summer temperatures;
- More frequent and persistent droughts;
- Decreasing snow pack in the Sierra Nevada mountains and associated risks to statewide water supplies;
- Significant increases in sustained peak electrical power demand and greater stress placed on local utilities and emergency responders;
- Changing and unpredictable flooding patterns because of increased storm intensity; less winter snow pack; and more runoff in rivers and streams during the wet season; and
- Higher sea levels and associated changes in the Sacramento-San Joaquin Delta region and potential increases in saltwater intrusion in the Sacramento River.

## **3.7.2 REGULATORY FRAMEWORK**

This section describes laws and regulations at the state and local level that may apply to the Project.

### **3.7.2.1 Federal Policies and Regulations**

Federal air pollution programs are administered by the US Environmental Protection Agency (US EPA). US EPA's air pollution mandates come primarily from the 1990 federal Clean Air Act Amendments (CAAA). The Clean Air Act was enacted in 1970 and substantially amended in 1990. In 2007, the US Supreme Court found (*Massachusetts et al. v. Environmental Protection Agency et al.*,

549 US 497 [2007]) that the US EPA had the capacity to regulate emissions of GHGs under the CAAA. Beginning in January 2011, US EPA began permitting GHG emissions under the Prevention of Significant Deterioration (PSD) and Title V Operating Permit Programs. The US EPA GHG Tailoring Rule established CO<sub>2</sub>e emissions thresholds for permitting GHG emissions under PSD and Title V from the largest emitters.

While US EPA calculates average fuel economy levels for vehicle manufacturers, and also sets related GHG standards, the US Department of Transportation (DOT) National Highway Traffic and Safety Administration (NHTSA) sets and enforces the Corporate Average Fuel Economy (CAFE) Standards. First enacted by Congress in 1975, the purpose of CAFE is to reduce energy consumption by increasing the fuel economy of cars and light trucks. The CAFE standards are fleet-wide averages that must be achieved by each vehicle manufacturer for its fleet of cars and light trucks, each year, since 1978. The 2012 CAFE standards established final combined fleet-wide average fuel economy of 40.3-41.0 mpg in model year 2021. At the same time, US EPA issued GHG standards, which are synched with NHTSA's fuel economy standards, that are projected to require 163 grams CO<sub>2</sub> per mile in model year 2025.

### **3.7.2.2 State Policies and Regulations**

#### STATEWIDE GHG TARGETS

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 established regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 required that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also included guidance to institute emission reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions. On April 29, 2015, Governor Edmund Brown Jr. issued Executive Order B-30-15. Executive Order B-30-15 required GHG emissions in California be reduced by 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050. On September 8, 2016, Governor Brown signed Senate Bill 32 (SB 32) into law which codified the mandate to reduce GHG emissions by 40 percent below 1990 levels by 2030.

Senate Bill (SB) 97, enacted in 2007, amended the CEQA statute to establish that GHG emissions and their effects are a prominent environmental issue that require analysis and identification of feasible mitigation under CEQA. GHG emissions were incorporated into the CEQA Guidelines on March 18, 2010.

In December 2008, CARB adopted its Climate Change Scoping Plan (Scoping Plan), which is the State's plan to achieve GHG reductions in California required by AB 32. The Scoping Plan includes CARB-recommended GHG reductions for each emission sector of the state's GHG inventory. The largest proposed GHG reductions recommended are from improving emission standards for light-duty vehicles, implementation of the Low-Carbon Fuel Standard, employing energy efficiency measures in buildings and appliances, the widespread development of combined heat and power

systems, and applying a renewable portfolio standard for electricity production. CARB adopted the First Update to the Climate Change Scoping Plan on May 22, 2014. The update reported on the progress made towards meeting the 2020 GHG reduction goals; laid the groundwork for longer term reduction goals; and discussed opportunities to leverage funds to drive additional GHG reductions. In December 2017, CARB adopted the 2017 Climate Change Scoping Plan, the strategy for achieving California's 2030 GHG target. The 2017 Climate Change Scoping Plan established the strategy to achieve California's GHG reduction target of 40 percent below 1990 levels by 2030 and set the path towards achieving the statewide 2050 target of 80 percent below 1990 levels.

## RENEWABLE ENERGY

The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) jointly implement the statewide Renewable Portfolio Standard (RPS) program through rulemakings and monitoring the activities of electric energy utilities in the state. SB 1078 established the RPS in 2002, which required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from eligible renewable sources by 2017. SB 107 changed the target date to 2010. In November 2008, Executive Order S-14-08 expanded the state's RPS goal to 33 percent renewable power by 2020. In September 2009, Executive Order S-21-09 directed CARB (under its AB 32 authority) to enact regulations to help the state meet the 2020 goal of 33 percent renewable energy. The 33 percent by 2020 RPS goal was codified in April 2011 with SB X1-2. SB X1-2 required retail sellers of electricity to provide at least 33 percent of their electricity supply (portfolio) from renewable sources by 2020. This requirement applied to investor-owned utilities, publicly-owned utilities such as the Sacramento Municipal Utilities District (SMUD), and community choice aggregators. Senate Bill 350, the Clean Energy and Pollution Reduction Act of 2015, was signed into law on October 7, 2015. It established new goals for clean energy, clean air, and GHG reduction goals for 2030 and beyond. SB 350 required California's renewable electricity procurement goal to be increased under the RPS from 33 percent by 2020 to 50 percent by 2030. On September 10, 2018, Governor Brown signed SB 100, which increased the RPS requirement to 60 percent eligible renewables by 2030 and 100 percent by 2045.

The state's cap-and-trade program is administered by CARB. It covers GHG emission sources that emit more than 25,000 MTCO<sub>2</sub>e/year, such as refineries, power plants, and industrial facilities. The market-based approach to reducing GHG emissions provides economic incentives for achieving GHG emission reductions.

## TRANSPORTATION

CARB's In-Use Off-Road Diesel Vehicles regulation became effective in 2008. The regulation covers a wide scope of vehicle types, including those used in construction. Although the stated goal of the regulation is to reduce particulate matter (PM) and oxides of nitrogen (NO<sub>x</sub>) emissions from existing (i.e., in-use) off-road heavy-duty diesel vehicles in California, the regulation limits vehicle idling. Under the rule, no vehicle or engine may idle for more than five minutes, which conserves fuel and reduces GHG emissions from burning fuel.

CARB approved the Low Carbon Fuel Standard (LCFS) regulation in 2009 and implementation began in 2011. The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels and encourage the production of those fuels. Providers of transportation fuels must demonstrate that the mix of fuels they supply for use in California meets the LCFS carbon intensity standards for each annual compliance period. In 2018, CARB approved amendments to the regulation, which included strengthening and smoothing the carbon intensity standards through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote ZEV adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The federal Heavy-Duty GHG Phase 1 regulation (Phase 1) was adopted in 2011 by the US EPA and NHTSA as the first federal GHG emission standards and fuel economy standards for heavy-duty engines and vehicles. In 2013, the CARB approved for adoption California Phase 1 GHG regulations that were substantially identical to the federal Phase 1 regulations. CARB staff worked closely with US EPA and NHTSA over the past several years on the development of Phase 2 GHG standards, which were adopted by US EPA and NHTSA on October 25, 2016.

CARB administers the Advanced Clean Cars program, which promulgates the Low-Emission Vehicle (LEV) regulation for criteria and GHG emissions and a technology forcing regulation for zero-emission vehicles (ZEV) that contributes to both types of emission reductions. These regulations are described in *Section 3.5.2.2 State Policies and Regulations* in *Section 3.5 Energy*.

## CALIFORNIA ENVIRONMENTAL QUALITY ACT AND SENATE BILL 97

Under CEQA, lead agencies are required to disclose the reasonably foreseeable adverse physical environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to climate change. In turn, climate change has the potential to raise sea levels, alter rainfall and snowfall frequency and intensity, affect habitat and create other adverse environmental effects.

Pursuant to State CEQA Guidelines Section 15183.5, "lead agencies may analyze and mitigate significant greenhouse gas emissions in a plan for the reduction of greenhouse gas emissions or similar document. A plan to reduce greenhouse gas emissions may be used in a cumulative impacts analysis. Pursuant to Sections 15064(h)(3) and 15130(d), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program under specified circumstances. The plan for the reduction of greenhouse gas emissions should quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area; establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable; identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area; specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if

implemented on a project-by-project basis, would collectively achieve the specified emissions level; establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels; and be adopted in a public process following environmental review."

### **3.7.2.3 Local Policies and Regulations**

#### **SMAQMD THRESHOLDS**

SMAQMD has established GHG significance thresholds for land use development projects, stationary source projects, and the construction phase of any type of project subject to CEQA (SMAQMD, 2010; revised 2021). In establishing the thresholds, SMAQMD took account of the amount of GHG reductions that would be needed in Sacramento County in order to achieve the statewide targets established in AB 32 and SB 32, namely the target of achieving 40 percent below 1990 levels by 2030. In the 2020 justification document for its GHG thresholds for land use development projects (SMAQMD, 2020), SMAQMD inventoried GHG emissions from the following land development sectors: residential and commercial (i.e., natural gas combustion for heating, cooking, and other uses within buildings); electric power (i.e., indirect GHG emissions that occur when electricity is used, typically from generation from offsite power plant locations); mobile (i.e., direct emissions from the combustion of gasoline, diesel, or compressed natural gas fuel); solid waste (i.e., all aspects of solid waste and materials management); and high-GWP gases (i.e., fluorocarbons, anthropogenic black carbon, and methane emissions associated with residential and commercial land use types including solid waste disposal and refrigerant use). The justification document (SMAQMD, 2020) for the SMAQMD land use development projects GHG threshold is focused on GHG emissions, targets, and reduction practices from new and existing projects. SMAQMD has also developed land use screening levels for land use categories such as residential, educational, recreational, retail, and commercial developments, which have mass emissions equivalent to 1,100 MTCO<sub>2</sub>e/year (SMAQMD, 2010; revised 2021).

The operational GHG threshold for stationary sources applies to emissions units that consist of a single emission source with an identified emission point, such as a stack, at a facility. Facilities can have multiple emission units located on-site and sometimes the facility as a whole is referred to as a "stationary source." Stationary sources are typically associated with industrial processes. Examples include boilers, heaters, flares, cement plants, and other types of combustion equipment (SMAQMD, 2010; revised 2021).

Along with its GHG significance thresholds, SMAQMD has provided Tier 1 and Tier 2 Best Management Practices (BMPs) for GHG reduction (SMAQMD, 2010; revised 2021). The Tier 1 GHG BMPs are required to be implemented in the operational phase of all projects subject to CEQA that rely on the SMAQMD operational threshold of significance. If a project's mass emissions are less than or equal to 1,100 MTCO<sub>2</sub>e/year and it implements the Tier 1 operational GHG BMPs, the operational GHG threshold of significance would not be exceeded. The Tier 2 GHG BMPs, or equivalent on-site or off-site mitigation, are required to be implemented by all projects that have the potential to emit more than 1,100 MTCO<sub>2</sub>e/year after incorporation of the Tier 1 GHG BMPs. In

other words, projects exceeding the 1,100 MTCO<sub>2</sub>e/year screening level, must implement SMAQMD's Tier 1 and Tier 2 GHG BMPs, or provide equivalent on-site or off-site mitigation measures. Projects that do not meet Tier 2 GHG BMPs are required to implement additional measures to further reduce vehicle miles traveled (VMT) to achieve the 2030 significance threshold.

The Tier 1 GHG BMPs are:

- BMP 1 – no natural gas: projects shall be designed and constructed without natural gas infrastructure.
- BMP 2 – electric vehicle (EV) ready: projects shall meet the current CalGreen Tier 2 standards, except all EV capable spaces shall be instead EV ready.

The Tier 2 GHG BMP consists of:

- BMP 3 – reductions in VMT that meet the following requirements (or equivalent local agency's adopted SB 743 targets):
  - Residential projects must achieve a 15 percent reduction in VMT per resident compared to existing average VMT per capita in the county.
  - Office projects must achieve a 15 percent reduction in VMT per worker compared to existing average VMT per capita for the county.
  - Retail projects must achieve no net increase in total VMT.

The mass emissions screening threshold and GHG BMPs address 2030 statewide GHG reduction goals. Longer term, SMAQMD recommends (SMAQMD, 2010; revised 2021) that projects demonstrate they would not impede the 2045 statewide carbon neutrality goal.

## CITY OF SACRAMENTO 2035 GENERAL PLAN AND CLIMATE ACTION PLAN

The City's initial CAP was developed in two phases. Phase 1, adopted in February 2010, addressed the City's internal government operations and identified strategies to reduce GHG emissions in a cost-effective manner in the City's municipal buildings, vehicle fleet, streetlights and signals, parks maintenance, water and drainage pumping, and other facilities and operations that are under the City's direct control. In Phase 2, the City developed a CAP (adopted February 14, 2012) that focused on reducing communitywide GHG emissions from activities within the City limits, as well as strategies to adapt to the effects of climate change.

In March of 2015, the City adopted the 2035 General Plan update. The 2035 General Plan integrated measures and actions from the Phase 2 CAP. Upon adoption, the 2035 General Plan became the City's CAP and the Phase 2 CAP was rescinded. The City continues to maintain and implement its Phase 1 CAP as a separate document to reduce emissions related to municipal activities and facilities (see CAP for IO, below). In 2018, the City initiated the 2040 General Plan update. In parallel, the City is also preparing an updated CAP, which will be revived as a standalone document that

provides an over-arching framework for community wide GHG reduction. The 2040 General Plan Update and CAP will include revised GHG reduction targets and strategies to achieve them, based on community outreach, technical analysis, and recommendations from the Mayors' Commission on Climate Change (described below).

The 2035 General Plan sets forth Goal Utilities (U) 2.1 and Policy U 2.1.2 that are related to the proposed Project objectives and consistency with the CAP strategies identified within the 2035 General Plan.

**Goal U 2.1: High Quality and Reliable Water Supply.** Provide water supply facilities to meet future growth within the city's Place of Use and assure a high-quality and reliable supply of water to existing and future residents.

- **Policy U 2.1.2: Increase Water Supply Sustainability.** The City shall maintain a surface water/groundwater conjunctive use program, which uses more surface water when it is available and more groundwater when surface water is limited.

In addition, the following 2035 General Plan goals are related to City municipal operations, like operation of the proposed Project. The 2035 General Plan lists policies and programs that would reduce GHG emissions for reference in Appendix B of the 2035 General Plan.

- **Policy ER 6.1.6: Community Greenhouse Gas Reductions.** The City shall reduce community GHG emissions by 15 percent below 2005 baseline levels by 2020, and strive to reduce community emissions by 49 percent and 83 percent by 2035 and 2050, respectively.
- **Policy ER 6.1.8: Additional GHG Emission Programs.** The City shall continue to evaluate the feasibility and effectiveness of new policies, programs, and regulations that contribute to achieving the City's long-term GHG emissions reduction goals.
- **Policy U 6.1.2: Peak Electric Load of City Facilities.** The City shall reduce the peak electric load for City facilities by 10 percent by 2015 compared to the baseline year of 2004, through energy efficiency, shifting the timing of energy demands, and conservation measures.
- **Policy U 6.1.3: City Fleet Fuel Consumption.** The City shall reduce its fleet's fuel GHG emissions by 75 percent by 2020 compared to the baseline year of 2005, and City operations shall be substantially fossil free (e.g., electricity, motor fuels).
- **Policy U 6.1.4: Energy Efficiency of City Facilities.** The City shall improve energy efficiency of City facilities to consume 25 percent less energy by 2030 compared to the baseline year of 2005.

## CITY OF SACRAMENTO CLIMATE ACTION PLAN FOR INTERNAL OPERATIONS

In 2010, the City adopted the Phase 1 IO CAP to reduce GHG emissions from the City's municipal operations. The IO CAP was called for in the 2030 General Plan. The City completed updates to the

IO CAP in 2016, using a 2013 GHG inventory. The 2030 General Plan required the City to reduce GHG emissions from City operations by 15 percent below 2005 baseline levels by 2020 (Policy ER 6.1.6), and the City identified how it would achieve the 2020 GHG reduction target in the 2016 IO CAP. The 2016 IO CAP identified the City's attainment of a 24 percent reduction in municipal GHG emissions below 2005 levels by 2013, exceeding the adopted 2020 target for a 22 percent reduction. The 2016 IO CAP targeted a near-term GHG reduction goal of 33 percent below benchmark 2005 levels by 2020, and mid-term and long-term goals to reduce municipal GHG emissions 49 percent below 2005 levels by 2035 and 83 percent below 2005 levels by 2050.

The 2016 IO CAP forecast GHG emissions in 2020, taking into account population growth, then estimated the "gap" in the forecasted GHG emissions without GHG reduction measures, and the 2020 target of 33 percent below 2005 levels. To achieve the full reduction potential of 33 percent below 2005 levels by 2020, emissions from the City's internal operations would need to be reduced 7,104 MTCO<sub>2e</sub> below 2013 levels to 52,651 MTCO<sub>2e</sub> per year by 2020. The 2016 IO CAP did not establish a mechanism to monitor the plan's progress toward achieving the goal and it is unknown whether the 2020 target was met. The 2016 IO CAP identified GHG reduction strategies in five main areas to achieve the near-term 2020 target: Building Energy, Water Management, Streetlights and Signals, Vehicle Fleet and Fuels, and Urban Forestry. Water Management strategies include pumping efficiency and system optimization, low-maintenance landscaping, and long-term water savings strategies and drought-response. Vehicle Fleet and Fuels strategies include fleet efficiency and electric vehicle pledge, and alternative fuels. Building Energy strategies include a green building policy for new City buildings. The 2016 IO CAP also accounted for GHG reductions from SMUD's compliance with the RPS by 2020. The 2016 IO CAP did not conduct a GHG forecast beyond 2020.

## MAYOR'S COMMISSION ON CLIMATE CHANGE

The Mayor's Commission on Climate Change was convened with the goal of seeking net zero GHG emissions by 2045. The City declared a climate emergency on December 10, 2019 that included the following resolution: "The 2040 General Plan Update and Climate Action Plan shall present the City's approach to achieve carbon neutrality by 2045 and emergency actions needed towards emissions elimination by 2030, building on recommendations and analysis from the Mayor's Commission on Climate Change, significant community outreach by City staff, and mitigation measures incorporated from climate experts, community members, and financial advisors." The Mayor's Commission on Climate Change issued a report in June 2020 with recommendations for how the City, along with the City of West Sacramento, can achieve carbon neutrality by 2045. The report, titled, "Achieving Carbon Zero in Sacramento and West Sacramento by 2045," focuses on recommendations to achieve zero net GHG emissions across both cities through implementing GHG reduction strategies for building energy use, transportation, land use planning, urban forestry, and sustainable food systems (City of Sacramento 2020). It also recommends strategies for community climate resilience.

The GHG reduction strategies focus on carbon (CO<sub>2</sub>) emissions from the built environment (i.e., supporting infill growth, electrifying new construction, and electrifying existing buildings with

retrofits); mobility (i.e., expanding active transportation and transit networks, and incentivizing ZEVs), and community health and resilience (i.e., sustainable food systems, and increasing the urban tree canopy). One of the mobility strategies is:

- **Mobility Recommendation #3: Zero-Emission Vehicles.** Develop a comprehensive package of incentives, disincentives and policies to encourage the adoption of zero-emission vehicles (ZEVs) so that: 70 percent of new vehicle registrations will be for ZEVs by 2030; and all public, private and shared fleets are fully electrified by 2045.

It also recommends strategies for community climate resilience. The report recognizes that in the Sacramento region, communities will need to prepare for and mitigate a range of climate-related impacts and disasters, including rising temperatures and more extreme heat waves, variable precipitation patterns that increase the risk of severe drought and flooding, and more devastating wildfires. The community health and resiliency strategies include:

- **Community Health and Resiliency Recommendation #3: Community Climate Resilience.** Identify climate vulnerabilities and adaptation strategies as part of the climate action plan or general plan updates by 2022. Develop and implement preparedness measures, with a priority focus initially on increasing the resilience of communities most vulnerable to climate-change impacts by investing in existing community assets and networks to increase community adaptive capacity.

## CITY OF SACRAMENTO DEPARTMENT OF UTILITIES SUSTAINABILITY POLICY

The purpose of the Sacramento DOU Sustainability Policy (City of Sacramento, 2021) is to provide an integrated set of commitments and goals that collectively position the DOU to foster sustainable change and deliver equitable water services. The document aligns with global, state, and city GHG reduction commitments. The Sustainability Policy has 8 focus areas:

**Focus Area 1. Climate Change** – Focus Area 1 calls for commitment to keeping global average temperature rise to below 2 degrees Celsius, strengthening resilience and adaptive capacity, conducting vulnerability assessments, and developing infrastructure vulnerability mitigation and adaptation plans. Implementing climate change mitigation and adaptation strategies will allow DOU to maintain resiliency in the face of rising temperatures, decreased snowpack, more frequent flooding and droughts, and other climate impacts.

**Focus Area 2. Greenhouse Gas Emissions** – Focus Area 2 calls for committing to 100 percent carbon free electricity by 2030 and becoming a carbon neutral utility by 2045, reducing GHG emissions by 28 percent by 2025, incorporating low-emissions and zero-emissions vehicles in fleet operations, and reducing municipal GHG emissions within the water sector. Currently, the water management sector comprises 17 percent of the City’s total municipal emissions. Reducing organization-wide greenhouse gas (GHG) emissions is a mitigation strategy that will help achieve the goal of being a Carbon Neutral utility.

**Focus Area 3. Energy Efficiency** – Focus Area 3 calls for energy reduction and increasing the use of renewable energy, recognizing that the DOU accounts for nearly half of the City’s building energy use and energy costs. Optimizing the energy needed for drinking water, storm drainage, and wastewater services will achieve significant cost savings and reduce greenhouse gas emissions and impacts on the environment.

**Focus Area 4. Water Conservation** – Focus Area 4 calls for water accessibility, and water conservation consistent with the City’s Water Conservation Master Plan and California’s Water Management Planning under Assembly Bill 1668 and Senate Bill 606. Efficiently managing water is critical to addressing the growing demand for water and threats to water security.

**Focus Area 5. Waste Management** – Focus Area 5 calls for reduction of waste by DOU employees, conserving materials, and minimizing waste through purchasing decisions. Improving waste management efforts within DOU facilities and operations will reduce its carbon footprint from solid waste landfills and contribute to healthier communities in Sacramento.

**Focus Area 6. Sustainable Infrastructure** – Focus Area 6 calls for development and upgrades of resilient infrastructure, supporting green infrastructure, and promoting design and construction that optimizes resources and minimizes waste. Sustainable infrastructure projects contribute to increased efficiency and resiliency; lower costs through preparedness and stakeholder collaboration; and reduction of negative impacts on the community and environment that the projects serve.

**Focus Area 7. Climate Equity and Environmental Justice** – Focus Area 7 calls for developing an Equity and Environmental/Social Justice Policy for the Department. Vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to adapt and recover from the impacts. For DOU, equity will be considered for all services offered, namely water, wastewater and drainage.

**Focus Area 8. Innovation** – Focus Area 8 calls for new technologies and innovative ideas to advance sustainability, and investing in technology that reduces carbon emissions, improves energy efficiency, conserves water, decreases waste, and develops sustainable infrastructure. Encouraging testing and application of innovative technologies will help DOU progress towards more efficient and sustainable operations.

## SMUD GHG REDUCTION COMMITMENTS

As described in the *Energy Section* (Section 3.5), SMUD is a publicly owned utility responsible for the generation, transmission, and distribution of electrical power to the Project study area. SMUD is subject to the RPS, California’s renewable electricity procurement goal of 33 percent renewables by 2020, 60 percent by 2030, and 100 percent by 2045. SMUD has generally decreased its carbon intensity factor for electricity supply over the past decade (The Climate Registry, 2021) and has seen a downward trend in GHG from its energy supplies since 2014 (SMUD, 2022b). SMUD has a goal to reduce retail customer service loads of GHG emissions to net zero carbon by 2030 (SMUD, 2021), exceeding the State RPS and SB 100 2045 goals. SMUD offers various renewable energy programs,

including SolarShares, where SMUD shares in the cost of installing and managing solar photovoltaic arrays at properties in its service area. Through the commercial SolarShares program, SMUD manages a solar array on behalf of program participants. The program participant pays into the program through an added fee on the monthly electric bill and does not need to install solar panels themselves. The City already participates in SMUD SolarShares on five of its wells, including three of the proposed replacement wells.

### 3.7.3 IMPACT ANALYSIS

#### 3.7.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to GHG.

Emissions of GHG from the proposed Project were estimated using the California Emissions Estimator Model (CalEEMod) version 2022.1, which was developed in collaboration with the SMAQMD.

#### MODEL ASSUMPTIONS AND METHODOLOGY

Project-specific construction and operational information described in the *Project Description* (Chapter 2) regarding equipment, phase duration, and material import/export as well as energy use and Operation and Maintenance (O&M) activities were used in the CalEEMod model to estimate Project emissions. CalEEMod default values were also used in the model to provide estimates on typical construction and operational values for similar project types for information such as mobile source trip lengths. The CalEEMod default that all equipment is diesel fueled was used because the majority of on-site construction equipment used for construction projects is diesel-powered. Likewise, CalEEMod defaults using calendar year statewide average equipment emissions factors, as opposed to tier-specific engine types (i.e., Tier 1, Tier 2, Tier 3, Tier 4 Interim, and Tier 4 final) were used because they are keyed to CARB's programs for reducing emissions from construction vehicle fleets over time. Default values were overridden when Project information was available or not representative of the Project. Modeling assumptions and results can be found in Appendix C.

To conduct the modeling of construction GHG emissions, representative construction activities for construction of a single well were selected from the Project construction details described in the *Project Description* to provide conservative estimates of activities typical to construction of all the wells because Project timing for individual well construction and deconstruction is still uncertain. The representative single well values used for the modeling are summarized in *Section 3.2 Air Quality*, **Table 3.2-4**, **Table 3.2-5**, and **Table 3.2-6**.

For long-term operational activities, GHGs were estimated for entire build-out of all 38 proposed wells, based on the assumption that eventually all 38 wells would be operating simultaneously. The analysis also conservatively assumes that each well would require the venting of methane emissions and treatment for manganese and other potential constituents. SMAQMD Framework

This analysis does not rely on project consistency with a qualified GHG reduction plan as a CEQA threshold because there is no plan that covers the proposed Project's GHG emissions. The 2035 General Plan did not cover GHG emissions from municipal projects in its inventory and reduction forecasts, and the 2016 IO CAP, which covers GHG emissions from municipal projects, only addresses GHG emissions and reductions until the year 2020.

Instead, this analysis relies on SMAQMD established significance thresholds to assist Lead Agencies in determining whether a project may have a significant GHG impact (**Table 3.7-1**). As mentioned in *Section 3.7.2 Regulatory Framework*, the SMAQMD established significance thresholds that serve as a framework for evaluating the significance of the Project's emissions. The SMAQMD framework is to compare the Project's emissions to the thresholds defined in **Table 3.7-1**. If the Project's emissions exceed these thresholds, the Project would have a potentially significant adverse impact on GHG.

**Table 3.7-1: SMAQMD Greenhouse Gas Emissions Thresholds**

GHG Emissions Threshold	Construction Phase	Land Development Projects, Operational Phase	Stationary Source, Operational Phase
GHG as CO <sub>2</sub> e	1,100 MT/year	1,100 MT/year*	10,000 MT/year

\*With incorporation of SMAQMD's Tier 1 Best Management Practices (BMPs): no natural gas, electric vehicle ready

Although the proposed Project is not a standard residential, commercial, or retail land development, this analysis uses the threshold for land use development projects because most of the Project's GHG emissions come from mobile sources and electricity use, which are similar to land use development projects. In addition, the proposed Project involves operation of groundwater replacement wells that would serve water to existing and planned future land use development projects.

Thus, if the proposed Project emits more than 1,100 MT CO<sub>2</sub>e/year of GHG in operational year 2030 after incorporation of Tier 1 GHG BMPs, it would not contribute its fair share contribution to achieving the Statewide goal of reducing GHG emissions 40 percent below 1990 levels by 2030 and would result in potentially significant impacts.

Longer term, beyond 2030, the State and the City of Sacramento have set a target of achieving carbon zero by 2045. Thus, if the proposed Project were to result in GHG emissions from energy use or transportation that resulted in net positive CO<sub>2</sub>e emissions in 2045 or later, it would not contribute its fair share contribution to achieving the goal and would result in potentially significant impacts.

### **3.7.3.2 Thresholds of Significance**

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018 an impact on GHG would be considered significant if the Project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

### 3.7.3.3 Impact Assessment

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#### Impact GHG-1      **Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

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#### IMPACT GHG-1 ANALYSIS

##### CONSTRUCTION IMPACTS

The Project would result in temporary construction-related GHG emissions from fuel combustion for mobile heavy-duty diesel and gasoline-powered equipment, portable auxiliary equipment, material delivery trucks, and worker commuter trips. As explained in the *Project Description* (Chapter 2), for each well, activities would involve exploratory test well drilling, well drilling and constructing the new well, well equipping and connecting (including construction of additional treatment facilities if needed), and destruction of the existing well. These activities would result in emissions of GHG. The GHG emissions from construction activities associated with each well are presented in **Table 3.5-1**.

**Table 3.7-2: Greenhouse Gas Emissions from Construction – Each Well**

Construction Phase	MTCO <sub>2</sub> e/year
Site preparation and mobilization	39
Site grading	7
Well drilling (test, then production)	152
Construction and equipping of test well, then production well	354
Site restoration and paving	16
Architectural coating and striping	2
Demolition of existing well and building	14
<b>Total</b>	<b>583</b>
Construction Phase Threshold for 2030	1,100
Significant?	No

It is assumed that the City would replace the 38 wells associated with the proposed Project over a period of 15 years. Construction activity per well (including exploratory drilling, well drilling and construction, well equipping, and well destruction) would be spread out over the course of 9 to 12 months. As shown in **Table 3.5-1**, construction of each well would result in GHG emissions of approximately 583 MTCO<sub>2</sub>e/year. Thus, in a single year, up to two wells could be constructed

without exceeding the annual GHG emissions threshold. However, condensing construction of all 38 wells into a shorter time frame has the potential to result in significant emissions. Therefore, prior to mitigation, construction impacts would be potentially significant. **Mitigation Measure GHG-1** requires phasing of well drilling to ensure that emissions during construction do not exceed thresholds.

### OPERATION IMPACTS

The Project would result in ongoing GHG emissions from vehicle maintenance trips, landscape maintenance, venting of well methane emissions, and indirect emissions associated with the Project's demand for electricity, which would be partially offset in dry years. It was conservatively assumed that all 38 wells would require additional treatment facilities for manganese and other potential contaminants, which would require electricity, resulting in indirect GHG emissions. Eventually, all 38 wells would be operating simultaneously. Therefore, the results presented in **Table 3.7-3** represent GHG emissions on an annual basis from operation of all wells.

**Table 3.7-3: Unmitigated GHG Emissions from Operations - All Wells**

Source	Dry/ critically dry water year type MTCO <sub>2</sub> e/year	Wet water year type MTCO <sub>2</sub> e/year
Mobile	negligible	negligible
Area	negligible	negligible
Stationary (emergency generators)	negligible	negligible
Electricity, wells operation	3,678	2,896
Electricity, difference at Fairbairn Water Treatment Plant	-300	0
Methane	2,100	2,100
<b>Total</b>	<b>5,478</b>	<b>4,996</b>
<b>Operational Phase Threshold for 2030</b>	<b>1,100</b>	<b>1,100</b>
<b>Significant?</b>	<b>Yes</b>	<b>Yes</b>

As shown in **Table 3.7-3**, unmitigated Project operations would result in a potentially significant impact. The following subsections further discuss operational impacts and applicable standards. The operational impact determination and appropriate mitigation is described at the end of the discussion under the "Conclusion" heading.

### MOBILE SOURCES

O&M activities would involve a handful of trips per week, resulting in mobile source emissions. These mobile source emissions would replace existing O&M trips, resulting in a negligible net change in GHG emissions from mobile sources. The City has reduced its vehicle fleet GHG emissions. In 2013, seven of the 1,819 vehicles in the City fleet were electric and 40 were gasoline-

hybrids; by 2020, the City intended to add 10 more electric vehicles and 13 more gasoline-hybrid vehicles to its fleet (2016 IO CAP). However, as of March 2022, all vehicles used by well O&M staff to service the existing wells are gasoline vehicles due to need of hauling heavy loads and it was unknown if fleets will provide electric, hybrid, or other carbon-neutral vehicles for O&M activities (Sananikone elec. comm., 2022). Therefore, the City would adhere with state regulations such as Advanced Clean Cars and LCFS, but O&M activities would continue to be conducted in standard, gasoline-consuming vehicles. The Project would not create new parking spaces, thus the SMAQMD Tier 1 GHG BMP 2 would not apply to the proposed Project. However, because all vehicles used by O&M staff to service the existing wells may be gasoline vehicles, the Project would conflict with the City's long-term GHG goal of zero carbon by 2045 and a substantially fossil free City fleet.

### AREA AND STATIONARY SOURCES

Well sites with landscaping would require minimal maintenance activities and result in emissions from area sources. In addition, GHG emissions would result from the proposed emergency generator at each well, referred to as stationary sources. Emissions would depend on the duration of use of the generators. These emissions would be relatively minor and replace area and stationary sources at existing wells that would be replaced by the Project. Emissions would be below SMAQMD annual thresholds of significance.

### ELECTRICITY

Operation of the proposed wells would consume electricity provided by SMUD. Modeling assumed SMUD's 2024 carbon intensity factor, which is available in CalEEMod (312 lbs/MWh CO<sub>2</sub>, 0.0129 lb/MWh CH<sub>4</sub>, and 0.0017 lb/MWh N<sub>2</sub>O), would remain static while all 38 wells are operational, although SMUD has pledged to gradually reduce the carbon intensity of the electricity it delivers in the future over the lifetime of the wells to net zero GHG emissions by 2030 (SMUD, 2021). The proposed Project would not include the use of natural gas, consistent with SMAQMD Tier 1 GHG Best Management Practices.

Annual GHG emissions from operational electricity consumption from all 38 proposed wells were modeled for both a dry/critically dry water year type and a wet water year type to understand the range of the proposed Project's electricity consumption. Under the dry year scenario, the City would extract the maximum amount of groundwater from the 38 wells, and the net increase in energy requirements would be 9,740 MWh per year over the baseline energy requirements of the existing wells. Under a wet water year type, the City would extract the least amount of groundwater and the net increase in energy requirements would be 4,240 MWh per year over the baseline energy requirements of the existing wells (City of Sacramento, 2017). Existing Wells 124 (Well 22), 156 (Well 25), and 158 (Well 34) participate in the SMUD SolarShares program (Sananikone elec. comm., 2022). It is assumed that existing participation in the SolarShares program is part of the baseline energy demand of the wells and would continue when those wells are replaced. Any additional wells' participation in a renewable energy program would be required as mitigation (see Section 3.7.3.4, below).

Operation of the proposed replacement wells would occur as part of an overall water supply management strategy. The City uses a combination of groundwater and surface water for its supply. In wet years, it relies more on surface water, whereas in dry years, it draws more on its groundwater supplies. Thus, higher groundwater use in dry years is accompanied by reductions in surface water diversions – and associated reductions in electricity use and indirect GHG emissions. As described in *Chapter 2 Project Description*, in dry years the City has agreed to limit diversions from the American River at the E.A. Fairbairn Water Treatment Plant, while it is allowed to continue to divert American River entitlements at its Sacramento River facility. The Fairbairn Water Treatment Plant uses approximately 8,500 MWh per year in dry years, compared to approximately 11,300 MWh in wet years according to recent electric billing data at the plant (Sananikone elec. comm. 2022 and DWR, 2021). Approximately 12 percent of the Fairbairn Plant's electricity demand is met by on-site solar (Sananikone elec. Comm., 2022) and the remainder by SMUD. Thus, in dry years, the Fairbairn Plant's GHG emissions are about 300 MTCO<sub>2e</sub> lower than when the City pulls its full entitlement from the American River, assuming SMUD 2024 carbon intensity factors. This GHG savings partially offsets the indirect GHG emissions associated with the wells' electricity use and is shown in **Table 3.7-3**.

Some replacement wells would require additional treatment facilities for manganese and other constituents. Such treatment is only currently provided at one well site (Well 167). As explained in the *Project Description* (Chapter 2), the equipment needed to treat the water may be required to run up to 24 hours per day to maintain system operations. Total electricity consumption for this operation is estimated to be 425,000 kWh per year per well, or 16,171 MWh per year if all 38 wells were to require the larger treatment facilities.

Compared to baseline conditions, GHG emissions from operation of the proposed Project (not accounting for methane, which is addressed below) would be higher than established thresholds. In dry years, when the City operates the replacement wells at their maximum capacity to offset limited surface water supplies, the Project would consume a greater amount of electricity, potentially resulting in significant levels of indirect GHG emissions. These emissions would decline over time as SMUD transitions to less GHG-intensive electricity sources and could be net zero by 2030 if SMUD achieves its target. However, given that the Project has no control over how quickly SMUD will achieve its net zero goal, without mitigation to lower indirect operational GHG emissions from electricity use, the proposed Project's emissions have the potential to be significant in dry water year types in operational year 2030, and potentially significant in operational year 2045 and beyond.

### METHANE

Two existing City wells that are currently pending permitting by the DDW would emit methane: Well 165 and Well 167. Well 165 and 167 would produce groundwater at approximately 2,800 gpm and 2,200 gpm, respectively. Methane would be removed from the well by adding a vent tube to the well cap. According to samples from these two wells (Alpha Analytical, 2020), the concentration of methane in the water would be as high as 9.8 mg/liter at Well 165 and as high as 6.6 mg/L at

Well 167. Well 165 would produce approximately 2,800 gpm, or 5.6 billion liters per year, and Well 167 would produce approximately 2,200 gpm, or 4.4 billion liters per year, of groundwater. At a concentration of 9.8 mg/L of methane, Well 165 would emit 54.9 metric tons of methane per year. At a concentration of 6.6 mg/L, Well 167 would emit 29.0 metric tons of methane per year. Methane has a GWP of 25; therefore, the carbon dioxide equivalent would be 2,100 MTCO<sub>2e</sub> from methane emissions from the wells.

For replacement wells under the proposed Project, the presence of methane would not be known until after the well is drilled. Groundwater produced from the Mehrten formation is known to contain methane, which requires treatment before potable water distribution. The City's approach to disposing or treating the methane gas, if it is present at the proposed wells, is unknown at this time. Potential approaches may include venting the methane at the well; disposing of the methane gas via combustion at the well sites; installing a form of packed column treatment whereby the media at the well pump absorbs the methane as it passes through; or installing a gas shroud on the well pump to reduce or eliminate methane production. The City assumes the methane will eventually cease the more the well is used; however, methane reduction over time is unknown (Sananikone elec. comm., 2022). Because future methane emissions and the City's approach to disposing or capturing methane gas are unknown at this time, the more conservative GHG emissions are presented, assuming methane emissions would occur in addition to the existing baseline conditions, and the methane gas would be treated through aeration and venting at the wellhead with no methane capture technologies in place. Without mitigation to capture or reduce methane emissions, the Project would not contribute its fair share towards achieving State and City long-term GHG reduction targets and impacts would be potentially significant.

### CONCLUSION

The proposed Project is needed to solidify the capacity and strategic use of groundwater to improve water supply reliability, diversify the City's supply portfolio, maintain the sustainability of the region's groundwater basins, and to promote conjunctive use of the City's water supplies in response, at least in part, to climatic changes. The proposed Project would adhere to all applicable GHG reduction measures, including the LCFS, Advanced Clean Cars, and In-Use Off-Road Diesel-Fueled fleets regulations, and applicable measures adopted under the 2016 IO CAP and Department of Utilities Sustainability Policy and Energy Management Policy, including fleet efficiency pledges and providing staff with training to implement energy savings. However, if construction proceeds at a pace faster than two wells being constructed annually, direct GHG emissions from construction have the potential to be significant. Furthermore, O&M activities may continue to be conducted in standard, gasoline-consuming vehicles. The City of Sacramento has set a goal of achieving zero carbon by 2045 and has policies in its General Plan and CAP to reduce the City fleet's fuel GHG emissions by 75 percent by 2020 compared to the baseline year of 2005 and have City operations be substantially fossil free. Without mitigation to reduce GHG emissions from O&M activities, the proposed Project would result in potentially significant direct GHG emissions from mobile sources.

The proposed Project would purchase electricity from SMUD, which is committed to lowering its GHG emissions. SMUD's carbon intensity factor for its electricity supply has generally declined over the past decade (The Climate Registry, 2021 and SMUD, 2022b) and SMUD's goal is to reduce GHG emissions to serve retail customer load to net zero carbon by 2030 (SMUD, 2021), consistent with the State RPS and SB 100 goal of achieving net zero electricity supplies by 2045. As SMUD transitions to electricity sources that are less carbon intensive, the indirect GHG emissions from the proposed Project would also decline. However, when the City operates the replacement wells and additional treatment facilities at the wells to offset limited surface water supplies, the Project would potentially result in significant levels of indirect GHG emissions if SMUD's carbon intensity factors do not decline.

Release of methane from operation of the wells would result in net additional GHG emissions each year, beginning when replacement wells that emit new methane emissions become operational, around 2040. Methane emissions would reduce over time as the wells are used. If methane levels rise abruptly in the future, the City would consider ways to capture or reduce emissions. The State has set a goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 and the City of Sacramento has set a goal of achieving zero carbon by 2045. Without mitigation to capture or reduce methane emissions, impacts would result in a significant amount of GHG emissions (approximately 2,100 MTCO<sub>2e</sub> per year from two wells) that would result in the proposed Project not contributing its fair share towards achieving the State and City long-term targets.

**Mitigation Measure GHG-1** requires the City to prepare an updated assessment of GHG emissions from the Project's construction phasing schedule, once it has been determined, and to ensure construction-related GHG emissions do not exceed established significance thresholds. **Mitigation Measure GHG-2** requires the City to prepare an updated assessment of GHG emissions from the Project's O&M vehicle fleet, prior to the start of operations, and to ensure mobile source GHG emissions are substantially zero by the City's target date, which is currently 2045. **Mitigation Measure GHG-3** requires the City to prepare an updated assessment of GHG emissions from the Project's electricity use, prior to the start of operations, and to ensure net electricity-related GHG emissions are lower than the 2030 threshold by 2030 and substantially zero by the State and City's zero carbon target date, which is currently 2045. **Mitigation Measure GHG-4** requires the City to assess and then offset annual methane emissions with offsets from an approved registry. The Project emissions modeling results with these mitigation measures incorporated are presented in **Table 3.7-4**.

**Table 3.7-4: Mitigated GHG Emissions from Operations - All Wells**

Source	Dry/ critically dry water year type MTCO <sub>2e</sub> /year	Wet water year type MTCO <sub>2e</sub> /year
Mobile	negligible	negligible
Area	negligible	negligible
Stationary (emergency generators)	negligible	negligible
Electricity, wells operation	1,400	1,100

Source	Dry/ critically dry water year type MTCO <sub>2</sub> e/year	Wet water year type MTCO <sub>2</sub> e/year
Electricity, difference at Fairbairn Water Treatment Plant	-300	0
Methane (offsets)	0	0
<b>Total</b>	1,100	1,100
<b>Operational Phase Threshold for 2030</b>	1,100	1,100
<b>Significant?</b>	No	No

Therefore, as shown in **Table 3.7-4**, with mitigation incorporated, impacts would be less than significant.

### IMPACT GHG-1 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measures GHG-1, GHG-2, GHG-3, and GHG-4 (see Section 3.7.3.4)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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### **Impact GHG-2      Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.**

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#### IMPACT GHG-2 ANALYSIS

The applicable plans are the CARB 2017 Climate Change Scoping Plan, the City of Sacramento 2035 General Plan and Climate Action Plan, the City of Sacramento IO CAP, and the Mayor's Commission on Climate Change report, which are described above in *Section 3.7.2.3 Local Policies and Regulations*. Potential conflicts with each plan are discussed under the subheadings below. Impact significance and the application of any necessary mitigation measures are then described under the "Conclusion" heading following the discussion.

#### CARB 2017 CLIMATE CHANGE SCOPING PLAN

As explained above in Section 3.7.2.3 Local Policies and Regulations, the CARB 2017 Climate Change Scoping Plan strategies to achieve the State GHG targets include supporting clean technologies (e.g., solar and wind power, electric vehicles); extending the Cap-and-Trade Program and Low Carbon Fuel Standard programs; planning for walkable/bikeable communities; reducing waste; supporting working lands; and securing water supplies. The proposed Project intersects the clean technologies and securing water supplies strategies.

The proposed Project would purchase electricity from SMUD, which is reducing the GHG emissions from its electricity supply in accordance with the RPS. In this way, the proposed Project would not interfere with GHG reduction targets from electricity use by 2030 and 2050 established in the CARB 2017 Climate Change Scoping Plan.

Furthermore, the CARB 2017 Scoping Plan calls for understanding the water-energy nexus and meeting water demands under the realities of climate change and population growth. The Plan notes that about 12 percent of the total energy used in California is related to water, with 2 percent for conveyance, treatment and distribution, and 10 percent for end-customer uses like heating and cooling. The proposed Project continues the use of a local water supply, which reduces energy requirements associated with conveyance. Local supplies also support a diverse portfolio that is more likely to withstand uncertainty related to climate change and population growth. Therefore, the proposed Project would not conflict with strategies in the CARB 2017 Climate Change Scoping Plan.

### CITY OF SACRAMENTO 2035 GENERAL PLAN AND CLIMATE ACTION PLAN

With the exception of the policies listed above (ER 6.1.6, ER 6.1.8, U 6.1.3, and U 6.1.4 in Section 3.7.2.3), the policies and programs to reduce GHG emissions from development projects in the 2035 General Plan (e.g., neighborhood connectivity, mixed use development, transportation demand management) do not apply to the proposed Project because the proposed Project is a municipal City Project.

### CITY OF SACRAMENTO CLIMATE ACTION PLAN FOR INTERNAL OPERATIONS

As explained above in Section 3.7.2.3 Local Policies and Regulations, the IO CAP was called for in the 2030 General Plan, adopted by the City in 2010, and updated in 2016 to reduce GHG emissions from the City's municipal operations. The project design and operational features that pertain to applicable 2016 IO CAP GHG reduction strategies include:

- Project wells would be operated in accordance with the City "Lights & Equip Off" policy for reducing energy consumption from lights and computers when not in use.
- Project facilities would implement energy efficient lighting in accordance with City green building standards.
- Project wells would utilize water pumps that are consistent with City goals to reduce the energy intensity of water conveyance.
- Well sites would incorporate low-maintenance sustainable landscaping.
- Operations and Maintenance activities would be conducted in accordance with the City's low emissions vehicle fleet and available clean fuel sources for trucks and heavy equipment.

The IO CAP was called for in the 2030 General Plan, adopted by the City in 2010, and updated in 2016 to reduce GHG emissions from the City's municipal operations. Because the City implements the 2016 IO CAP on an ongoing basis, it would incorporate feasible, applicable strategies from the 2016 IO CAP into well design and O&M procedures. With incorporation of all applicable standard measures from the 2016 IO CAP into well design and O&M procedures, the proposed Project would not conflict with the 2016 IO CAP.

### MAYOR'S COMMISSION ON CLIMATE CHANGE

The Mayor's Commission on Climate Change report, "Achieving Carbon Zero in Sacramento and West Sacramento by 2045," (City of Sacramento, 2020) identifies strategies to achieve carbon zero by 2045, which are described above in *Local Policies and Regulations* (Section 3.7.2.3).

The proposed Project would provide greater security and reliability for the City's water supply, which supports the goals of climate resilience in response to more extreme variation in precipitation and drought. Furthermore, the proposed wells would rely on electricity as opposed to natural gas for normal operations, which supports the built environment goals.

However, there is a potential that the City may not achieve full electrification of its public shared vehicle fleet by 2045. Currently, all vehicles used by well O&M staff are gasoline vehicles due to need of hauling heavy loads and it was unknown if the City will provide electric, hybrid, or other carbon-neutral fleet vehicles for O&M activities (Sananikone, elec. comm., 2022). In addition, there is the potential for the Project's indirect GHG emissions from electricity consumption to exceed net zero by 2045 because the Project is reliant on SMUD's independent GHG reduction trajectory. Therefore, the proposed Project would conflict with the Mayor's Commission on Climate Change goal of achieving carbon zero by 2045.

### CONCLUSION

Prior to mitigation, the Project's GHG emissions would be higher than the GHG reduction targets called for in State legislation and the 2017 Climate Change Scoping Plan, the City of Sacramento General Plan, the IO CAP, and the Mayor's Commission on Climate Change. To comply with the 2017 Climate Change Scoping Plan and Mayor's Commission on climate change goals, the Project would need to lower annual GHG emissions from construction, mobile sources, and methane releases.

With implementation of **Mitigation Measures GHG-1, GHG-2, GHG-3, and GHG-4**, Project GHG emissions would be lower than established SMAQMD thresholds, which are designed to support the statewide targets established in AB 32 and SB 32, and promulgated in the 2017 Climate Change Scoping Plan, IO CAP, and City's 2035 General Plan. Furthermore, the proposed Project would not impede the strategies of applicable plans adopted for the purposes of reducing GHG emissions, including the CARB 2017 Climate Change Scoping Plan and the IO CAP.

The proposed Project would also support goals of promoting climate resiliency in the 2017 Climate Change Scoping Plan. Emissions from mobile sources would eventually decline with adherence to

the IO CAP strategies for low emissions vehicles fleet and available clean fuel sources. **Mitigation Measure GHG-2** would require that the City achieve a fully carbon-neutral fleet by the time the Mayor's Commission on Climate Change has targeted. Therefore, with implementation of **Mitigation Measures GHG-1, GHG-2, GHG-3, and GHG-4** the proposed Project would not conflict with long-term GHG reduction goals and impacts would be less than significant.

### IMPACT GHG-2 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** **Mitigation Measures** GHG-1, GHG-2, GHG-3, and GHG-4 (see Section 3.7.3.4)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

### **3.7.3.4 Mitigation Measures**

#### MITIGATION MEASURE GHG-1: PHASING OF WELL DRILLING

To ensure that annual emissions of GHG do not exceed the SMAQMD significance threshold, prior to the start of construction of any replacement well, the City or its designee shall provide documentation that includes a licensed engineer's or qualified analyst's estimate of the annual GHG emissions from construction that demonstrates the construction phasing schedule will achieve maximum annual GHG emissions of 1,100 MTCO<sub>2e</sub>/year or less. If a plan is not prepared, the City shall limit Project construction activities such that, in any single year, a maximum of two wells are constructed.

#### MITIGATION MEASURE GHG-2: FLEET ELECTRIFICATION

In order for the Project to be consistent with the Mayor's Commission on Climate Change target that all public shared fleets be fully electrified by 2045, prior to the commencement of operations of any Project well, the City shall provide documentation that includes a licensed engineer's or qualified analyst's estimate of the average annual CO<sub>2e</sub> emissions from the Project's O&M vehicle fleet. The documentation shall demonstrate that O&M activities will be conducted using a carbon-zero vehicle fleet by 2045, the year in which the City currently seeks to achieve carbon zero.

#### MITIGATION MEASURE GHG-3: SOLARSHARES PARTICIPATION

Prior to the commencement of operations of any Project well, the City shall provide documentation that includes a licensed engineer's or qualified analyst's estimate of the average annual CO<sub>2e</sub> emissions from the well's electricity consumption in operational years 2030 and 2045. The documentation shall include the number of wells that participate in the SolarShares program in addition to the baseline participation of 124 (Well 22), 156 (Well 25), and 158 (Well 34). If total CO<sub>2e</sub> from well electricity consumption exceeds 1,100 CO<sub>2e</sub>/year in operational year

2030, then the City shall enroll 62 percent of the replacement wells in the SolarShares program or provide an equivalent level of the Project's electricity from renewable power. If total CO<sub>2e</sub> from well electricity consumption exceeds 0 CO<sub>2e</sub>/year in operational year 2045, then the City shall enroll all replacement wells in the SolarShares program or provide an equivalent level of the Project's electricity from renewable power.

#### MITIGATION MEASURE GHG-4: PURCHASE OF CARBON OFFSETS FOR METHANE GHG EMISSIONS

Prior to the commencement of operations of any Project well, the City shall provide documentation that includes a licensed engineer's estimate of the average annual net methane (CH<sub>4</sub>) emissions that have been deemed to be unavoidable to operations due to infeasibility of methane capture or reduction technologies. The documentation shall include verification of purchase and retirement of credits to offset the methane emissions to net zero for each year of operations during the 40-year life of the Project, using verified carbon offset credits.

The carbon offset credits shall be from a registry approved by CARB, and be quantified and verified using protocols that are consistent with the criteria identified in the California Code of Regulations, title 17, section 95972 – namely that they be real; permanent; quantifiable; verifiable; additional as defined by Health and Safety Code section 38562, subdivisions(d)(1) and (d)(2) and California Code of Regulations, title 17, section 95802, subdivision (a); and enforceable. In addition, any offsets originating outside California must have GHG emissions programs equivalent to, or more stringent than, California's cap and trade program. Within 120 days of City approval of the documented emissions estimates, the City shall provide evidence that carbon offset credits have been purchased and retired for the purpose of offsetting the City-approved emissions estimates for the 40-year life of the Project.

#### **3.7.3.5 Cumulative Impact Analysis**

GHG emissions impacts on global climate change are inherently a cumulative problem. GHGs stay in the atmosphere long enough to be globally mixed; therefore, GHG emissions from a project have a cumulative global impact. The SMAQMD thresholds and all applicable plans and policies discussed above recognize and acknowledge the cumulative nature of climate change and an individual project's GHG emissions. With implementation of **Mitigation Measures GHG-1, GHG-2, GHG-3, and GHG-4**, the proposed Project would not result in GHG emissions that are cumulatively considerable, and impacts would be less than significant.

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### *3.7.5 GREENHOUSE GAS EMISSIONS ACRONYMS AND ABBREVIATIONS*

AB	Assembly Bill
BMPs	Best Management Practices
CARB	California Air Resources Board
CCR	California Code of Regulations
DWR	California Department of Water Resources
CalEEMod	California Emissions Estimator Model
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CPUC	California Public Utilities Commission
DDW	California State Water Resources Control Board Division of Drinking Water
CO <sub>2</sub>	Carbon Dioxide
IO CAP	City of Sacramento Climate Action Plan for Internal Operations
CAAA	Clean Air Act Amendments
CAP	Climate Action Plan
Scoping Plan	Climate Change Scoping Plan
CAFE	Corporate Average Fuel Economy
ER	Environmental Resources
GWP	Global Warming Potential
GHG	Greenhouse gas
LCFS	Low Carbon Fuel Standard
LEV	Low-Emission Vehicle
MWh	Megawatt hour
CH <sub>4</sub>	Methane
MT	Metric ton
MTCO <sub>2</sub> e	Metric tons of carbon dioxide equivalents
NHTSA	National Highway Traffic and Safety Administration

N <sub>2</sub> O	Nitrous Oxide
NO <sub>x</sub>	Nitrogen Oxides
PM	Particulate Matter
PSD	Prevention of Significant Deterioration
RPS	Renewable Portfolio Standard
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utilities District
SB	Senate Bill
DOT	U.S. Department of Transportation
U.S. EPA	United States Environmental Protection Agency
ZEVs	Zero-emission vehicles

## **3.8 HAZARDS AND HAZARDOUS MATERIALS**

This section evaluates the potential hazardous impacts associated with implementation of the proposed Project.

### *3.8.1 ENVIRONMENTAL SETTING*

#### **3.8.1.1 Regional Setting**

Most of the City's development initially occurred at the Sacramento River waterfront, which includes the Sacramento and American Rivers, and included the commercial transport of lumber and agriculture. The central city area was developed in the 1840s and had a history of mixed commercial, industrial, and residential use. The riverfront consisted of industrial uses to support commercial freight including docks and tank farms. The railroad was also a large presence in the City and had railyards occupying a large swath of land along the Sacramento and American Rivers.

In more recent years, Aerojet had facilities in South Sacramento that created remediation sites along with Mather and other military facilities within the area. The combination of these facilities contributed to a concentration of hazardous contamination within the area. Additionally, major trucking routes on I-80 and I-5 are main transport corridors on the west coast for all types of materials.

Hazardous materials use and waste generators within the City include industries, businesses, public and private institutions, and households. Some of these facilities use classes of hazardous materials that require accidental release scenario modeling and Risk Management Plans to protect surrounding land uses (City of Sacramento, 2015).

There are also several sites within the City that are under agency oversight for soil or groundwater contamination. One site is included on the federal Superfund list (Sacramento Army Depot) (City of Sacramento, 2015). Most of the other soil and groundwater contamination sites are related to leaking underground fuel storage tanks, which are either being investigated or remediated under the oversight of Sacramento County Environmental Management Department (SCEMD) or Regional Water Quality Control Board (RWQCB) staff (City of Sacramento, 2015). Some contamination has also occurred from historic uses related to transportation, such as railyards, and materials processing (City of Sacramento, 2015).

Naturally occurring asbestos is found in serpentine soils in the foothills of California and is considered to be a hazardous material due to exposure related to public health concerns. The majority of the Sacramento region is not a known place for the occurrence of natural occurring asbestos.

### 3.8.1.2 Project Vicinity

#### HAZARDOUS MATERIALS SITES

A search of the State Water Resources Control Board (SWRCB) GeoTracker database and the California Department of Toxic Substances Control (DTSC) EnviroStar database showed there are no known active/open or closed hazardous materials sites at any of the Project well sites (DTSC, 2022a and SWRCB, 2022).

#### SCHOOLS

**Table 3.8-1** and **Table 3.8-2** identify all schools, including preschools, K-12, and universities, within one-quarter mile of the Project sites. Replacement well sites 1, 10, and 33 are located on school properties.

**Table 3.8-1: Schools within ¼-mile of Replacement Well Sites**

Replacement Well Site	School	Address	Approximate Distance from Replacement Well Site (miles)
Well 1	Rosa Parks Elementary	2250 68th Ave.	0.2
Well 1	Success Academy High	2221 Matson Dr.	0
Well 2	John Morse Elementary	1901 60th Ave.	0.13
Well 3	Collis P Huntington Preschool	5917 26 <sup>th</sup> St.	0.11
Well 4	Tahoe Elementary	3110 60th St.	0.03
Well 8	Camellia Elementary	6600 Cougar Dr.	0.02
Well 10	Grant Union High	1400 Grand Ave.	0.15
Well 10	Grant West High	1400 Grand Ave.	0
Well 11	Taylor Street Elementary	4350 Taylor St.	0.16
Well 11	Futures High	900 Grace Ave	0.25
Well 15	Discovery High	3401 Fong Ranch Rd.	0.05
Well 30	Martin Luther King, Jr. Technology Academy Middle	3051 Fairfield St.	0.25
Well 31	Hagginwood Elementary	1418 Palo Verde Ave.	0.16
Well 33	Rio Cazadero High School	7825 Grandstaff Dr.	0
Well 38	California State University, Sacramento	6000 J St.	0.25

**Table 3.8-2: Schools within ¼-mile of Existing Wells to be Replaced**

Existing Well Number	School	Address	Approximate Distance from Replacement Well Site (miles)
Well 91	Smythe Academy K9	2781 Northgate Blvd.	0.25
Well 94	Rio Tierra Junior High School	3201 Northstead Dr.	0.25
Well 107	Rio Cazadero High School	7825 Grandstaff Dr.	0.18
Well 122	Hagginwood Elementary School	1418 Palo Verde Ave.	0.15
Well 124	Fairbanks Elementary School	227 Fairbanks Ave.	0.1
Well 125	Fairbanks Elementary School	227 Fairbanks Ave.	0.21
Well 134	Glenwood Elementary School	201 Jessie Ave.	0.25
Well 143	Martin Luther King, Jr. Technology Academy	3051 Fairfield St.	0.25
Well 166 (E.A. Fairbairn)	California State University, Sacramento	6000 J St.	0.1

## AIRPORTS

Airports or airstrips located within 2-miles of the Project sites are listed in **Table 3.8-3**. There are four airports located within Sacramento County with adopted airport land use plans: Sacramento International Airport (SACOG, 2013), McClellan Airport (formerly McClellan Air Force Base) (SACOG, 1992), Mather Airport (formerly Mather Air Force Base) (SACOG, 1997), and Sacramento Executive Airport (SACOG, 1999). The Sacramento Executive Airport is the only airport from the previous list that is located within the City. The Rio Linda Airport is also found within the City; however, the airport does not have an adopted land use plan. Proposed well sites are only found within 2-miles of the Sacramento Executive Airport and the Rio Linda Airport.

The Sacramento Executive Airport has three types of safety areas (the clear zones, the approach-departure zone, and the overflight zone) that restrict land uses to potential aircraft crash hazards (SACOG, 1999). Land uses that are considered as hazardous to air navigation for the safety restriction areas include uses that attract large concentration of birds, produce smoke, generate flashing lights, reflect light, generate electronic interference, and include flammable materials (SACOG, 1999). Well site 2 is in the approach-departure zone and well site 3 is located in the overflight zone (SACOG, 2015a). The Sacramento Executive Airport also has a noise restriction area; however, all well sites are outside this area, which limits land uses to avoid excessive noise disturbances (SACOG, 2015b).

Well site 28 is located within Rio Linda Airport's safety zone (SACOG, 2015c and 2015d). The Rio Linda Airport is a privately owned airport and is not part of the Sacramento County Airport System; and therefore, does not have an adopted airport land use plan to determine what the restrictions may be for the airport's safety zone. As the Rio Linda Airport is considered to be a part of SACOG, it

has been assumed that the Rio Linda Airport safety zone has the same definition and restrictions as the Sacramento Executive Airport.

**Table 3.8-3: Airports or Airstrips within 2-miles of Well Sites**

Well Site	Distance	Airport
Well 1	2 miles	Sacramento Executive Airport
Well 2	1 mile	Sacramento Executive Airport
Well 3	1 mile	Sacramento Executive Airport
Well 28	0.7 miles	Rio Linda Airport

## WILDFIRES

To some degree, all of California is subject to fire hazard especially with the prolonged droughts that have occurred in the past ten years. The California Department of Forestry and Fire Protection (CAL FIRE) established fire hazard severity zones throughout the state that are determined based on factors that influence fire likelihood and fire behavior. These factors include fuel, slope, and fire weather (CAL FIRE, 2019).

Wildfire protection in California is the responsibility of either the local, state, or federal government. State responsibility area (SRA) is a legal term defining the area where the State has financial responsibility for wildfire protection. Local responsibility areas (LRAs) include incorporated cities, agriculture lands, urban regions, and portions of the desert. LRA fire protection is generally provided by the city fire departments, fire protection districts, counties, and by CAL FIRE under contract with the local government (CAL FIRE, 2019). The proposed Project is within a LRA that does not include any very high fire hazard severity zones (VHFHSZs) (CAL FIRE, 2007). The nearest VHFHSZs are located in Herald in Sacramento County, Lone in Amador County, Placerville in El Dorado County, and Auburn in Placer County (CAL FIRE, 2007).

### 3.8.2 REGULATORY FRAMEWORK

This section describes laws and regulations at the federal, state and local level that may apply to the Project.

#### 3.8.2.1 Federal Policies and Regulations

##### RESOURCE CONSERVATION AND RECOVERY ACT – TITLE 40 US CODE OF FEDERAL REGULATIONS (USC), CHAPTER 1, SUBCHAPTER I, PARTS 260–265

The Resource Conservation and Recovery Act (RCRA) (42 USC §6901-6987) was enacted in 1976 and gave the U.S. Environmental Protection Agency (US EPA) the authority to control hazardous waste from “cradle-to-grave,” which includes the generation, transportation, treatment, storage and disposal of hazardous waste. RCRA also set forth a framework for the management of non-

hazardous solid wastes. The 1986 amendments to RCRA enabled US EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. The Federal Hazardous and Solid Waste Amendments (HSWA) were added to RCRA in 1984 and focused on waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. Some of the other mandates of this law include increased US EPA enforcement authority, more stringent hazardous waste management standards, and a comprehensive underground storage tank program (US EPA, 2021).

#### UNIVERSAL WASTE – TITLE 40 US CODE OF FEDERAL REGULATIONS, CHAPTER 1, SUBCHAPTER I, PART 273

This regulation governs the collection and management of widely generated waste, including batteries, pesticides, mercury-containing equipment, and bulbs. This regulation streamlines the hazardous waste management standards and ensures that such waste is diverted to the appropriate treatment or recycling facility.

#### OIL POLLUTION PREVENTION – TITLE 40 US CODE OF FEDERAL REGULATIONS, CHAPTER 1, SUBCHAPTER D, PART 112

Oil Pollution Prevention regulations require the preparation of a spill prevention, control, and countermeasure plan if oil is stored in excess of 1,320 gallons in aboveground storage (or if there is a buried capacity of 42,000 gallons). Spill prevention, control, and countermeasure regulations place restrictions on the management of petroleum materials and, therefore, have some bearing on hazardous materials management.

#### COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as the Superfund Act, was developed in 1980 and created a tax on the chemical and petroleum industries, as well as provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. The law authorizes two kinds of response actions: 1) short-term removals, where actions may be taken to address releases or threatened releases requiring prompt response; and 2) long-term remedial response actions, that permanently and significantly reduce the dangers associated with releases or threats of releases of hazardous substances that are serious, but not immediately life threatening. These actions can be conducted only at sites listed on US EPA's National Priorities List (US EPA, 2022a). CERCLA was amended in 1986 by the Superfund Amendments and Reauthorization Act, which stressed importance of permanent remedies to clean up hazardous waste, increased State involvement, and increased focus on human health problems posed by hazardous waste sites (US EPA, 2022b).

## EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT – TITLE 42 US CODE OF FEDERAL REGULATIONS, CHAPTER 116

The Emergency Planning and Community Right-to-Know Act provides for public access to information about chemical hazards. This law and its regulations, included in Title 40 USC §350–372 establish four types of reporting obligations for facilities storing or managing specified chemicals: emergency planning, emergency release notification, hazardous chemical storage reporting requirements, and toxic chemical release inventory. The US EPA maintains a database, termed the Toxic Release Inventory, which includes information on reportable releases to the environment.

## TOXIC SUBSTANCE CONTROL ACT

The Toxic Substances Control Act of 1976 (TSCA) provides the US EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA addresses the production, importation, use, and disposal of specific chemicals, including polychlorinated biphenyls (PCBs). Under TSCA, the US EPA has the ability to track the 83,000 industrial chemicals currently produced or imported in the United States and can ban the manufacture and import of those chemicals that pose an unreasonable risk. The Frank R. Lautenberg Chemical Safety for the 21st Century Act was signed into law on June 22, 2016, which amended the TSCA. The Act included mandatory requirements for US EPA to evaluate existing chemicals with clear and enforceable deadlines and increased public transparency for chemical information (US EPA, 2022b).

## HAZARDOUS MATERIALS TRANSPORTATION ACT AND HAZARDOUS MATERIALS TRANSPORTATION UNIFORM SAFETY ACT

The Hazardous Materials Transportation Act of 1975 (HMTA) allowed the Secretary of Transportation to designate as hazardous material any “particular quantity or form” of a material that “may pose an unreasonable risk to health and safety or property.” The HMTA is enforced by compliance orders, civil penalties and injunctive relief (OSHA, n.d.-a).

The Hazardous Materials Transportation Uniform Safety Act was passed in 1990 and clarified conflicting federal state and local regulations. The Act required the Secretary of Transportation to promulgate regulations for the safe transport of hazardous material in intrastate, interstate and foreign commerce. The Secretary also retains authority to designate materials as hazardous when they pose unreasonable risks to health, safety or property (OSHA, n.d.-a).

## OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION WORKER SAFETY REQUIREMENTS

The federal Occupational Safety and Health Administration (OSHA) is the federal agency responsible for ensuring worker safety. The federal regulations for worker safety are contained in Title 29 of the USC as authorized in the Occupational Safety and Health Act of 1970. These regulations provide standards for safe workplaces and work practices, including those relating to

hazardous materials handling. Specifically, USC §1910.120 is titled “Hazardous waste operations and emergency response” and covers clean-up operations involving hazardous substances, operations involving hazardous substances, and emergency response operations for releases or substantial threats of releases of hazardous substances (OSHA, n.d.-b). Subpart H of OSHA Occupational Safety and Health Standards covers procedures relating to working with various hazardous materials including compressed gases flammable liquids. This subpart also describes protection and protective gear pertaining to hazardous waste operations and emergency response (OSHA, n.d.-c).

## TITLE 49 US CODE OF FEDERAL REGULATIONS, PART 172, SUBCHAPTER C – SHIPPING PAPERS

The US Department of Transportation established standards for the transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests.

- **Federal Response Plan** of 1999, as amended in 2003 is a signed agreement among 27 federal departments and agencies, including the American Red Cross, that (1) provides the mechanism for coordinating delivery of federal assistance and resources to augment efforts of state and local governments overwhelmed by a major disaster or emergency, (2) supports implementation of the Robert T. Stafford Disaster Relief and Emergency Act and individual agency statutory authorities, and (3) supplements other federal emergency operations plans developed to address specific hazards. The Federal Response Plan is implemented in anticipation of a significant event likely to result in a need for federal assistance or in response to an actual event requiring federal assistance under a presidential declaration of a major disaster or emergency.
- **International Fire Code (IFC)**, created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code use a hazard classification system to determine what measures are required to protect against structural fires. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, IFC employs a permit system based on hazard classification. The IFC is updated every 3 years.

### **3.8.2.2 State Policies and Regulations**

#### CALIFORNIA DEPARTMENT OF TRANSPORTATION

Caltrans is responsible for planning, designing, building, operating, and maintaining California’s transportation system. Caltrans sets standards, policies, and strategic plans that aim to do the following: 1) provide the safest transportation system for users and workers; 2) maximize

transportation system performance and accessibility; 3) efficiently deliver quality transportation projects and services; 4) preserve and enhance California's resources and assets; and 5) promote quality service. Caltrans has the discretionary authority to issue special permits for the use of State highways for other than normal transportation purposes. Caltrans also reviews all requests from utility companies, developers, volunteers, nonprofit organizations, and others desiring to conduct various activities within the State Highway right-of-way.

The following Caltrans regulations apply to potential transportation and traffic impacts associated with the proposed Project.

- **Title 13 California Code of Regulations, Division 2, Chapter 6.** California regulates the transportation of hazardous waste originating or passing through the state. The California Highway Patrol (CHP) and the California Department of Transportation have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. CHP enforces transit and provides detailed information to cleanup crews in the event of an incident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of CHP. CHP conducts regular inspections of licensed transporters to ensure regulatory compliance. The California Department of Transportation has emergency chemical spill identification teams at locations throughout the state. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

## UNIFIED HAZARDOUS WASTE AND HAZARDOUS MATERIALS MANAGEMENT REGULATORY PROGRAM

In 1994, the Legislature created a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program to consolidate and coordinate the activities of six separate hazardous materials programs under one agency, a Certified Unified Program Agency (CUPA). The intent has been to simplify the hazardous materials regulatory environment and provide a single point of contact for businesses to address inspection, permitting, billing, and enforcement issues. The Sacramento County Environmental Management Department is designated as the CUPA for Sacramento County where the proposed Project is located.

Under the California Environmental Protection Agency, the DTSC and Enforcement and Emergency Response Program administer the technical implementation of California's Unified Program, which consolidates the administration, permit, inspection, and enforcement activities of several environmental and emergency management programs at the local level. CUPAs implement the hazardous waste and materials standards. This program was established under the amendments to the California Health and Safety Code (Division 20, Chapter 6.11, §25404-25404.9) made by Senate Bill 1082 in 1994. The following programs make up the Unified Program:

- Aboveground Petroleum Storage Act Program

- Area Plans for Hazardous Materials Emergencies
- California Accidental Release Prevention (CalARP) Program
- Hazardous Materials Release Response Plans and Inventories (HMRPs)
- Hazardous Material Management Plans and Hazardous Material Inventory Statements
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment (Tiered Permitting) Program
- Underground Storage Tank Program

Title 19 of the California Code of Regulations (Chapter 2, Subchapter 3, §2729-2734) and California Health and Safety Code (Division 20, Chapter 6.95, §25500-25520) also requires the preparation of an HMRP by facility operators. The HMRP identifies the hazards, storage locations, and storage quantities for each hazardous chemical stored on site. The HMRP is submitted to the CUPA for emergency planning purposes.

#### DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Under the California Hazardous Waste Control Act, California Health and Safety Code, Division 20, Chapter 6.5, §25100, et seq., the CalEPA, DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA, as long as US EPA has determined the state program is at least as stringent as Federal RCRA requirements. California's hazardous waste program has been federally approved. Thus, in California, DTSC enforces hazardous waste regulatory requirements. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

DTSC is also the administering agency for the California Hazardous Substance Account Act, California Health and Safety Code, Division 20, Chapter 6.8, §25300 et seq., also known as the State Superfund law, providing for the investigation and remediation of hazardous substances pursuant to State law.

DTSC maintains a Hazardous Waste and Substances Site List for site cleanup. This list is commonly referred to as the Cortese List. Government Code §65962.5 requires the CalEPA to update the Cortese List at least annually. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

## CALIFORNIA ACCIDENTAL RELEASE PROGRAM

California has developed an emergency response plan to coordinate emergency services provided by Federal, State, and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the Sacramento County Environmental Management Department (SCEMD), which coordinates the responses of other agencies, including CalEPA, CHP, the Department of Fish and Game, the RWQCB, and the local fire department of Sacramento Fire Department in conjunction with the SCEMD provide first response capabilities and backup support responses, if needed, for hazardous materials emergencies within the Project area.

EMA is also the State administering agency for CalARP and California's Hazardous Materials Release, Response and Inventory Law (California's Business Plan Law). State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or to mitigate injury to human health or the environment. These laws require hazardous materials users to prepare written plans, such as Hazard Communication Plans and Hazardous Materials Management Plans. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely. Primary responsibility for enforcement of these laws has generally been delegated to local agencies.

## CALIFORNIA HEALTH AND SAFETY CODE – HAZARDOUS MATERIALS BUSINESS PLANS

The State of California Health and Safety Code §25501 requires an owner or operator of a facility to complete and submit a Hazardous Material Business Plan (HMBP) if the facility handles a hazardous material or mixture containing a hazardous material that has a quantity at any one time during the reporting year equal to or greater than 55 gallons of liquids, 500 pounds of solids, or 200 cubic feet for a compressed gas. The intent of HMBPs is to provide basic information necessary for use by first responders in order to prevent or mitigate damage to the public health and safety and to the environment from a release or threatened release of a hazardous material, as well as satisfy federal and State Community Right-To-Know laws. A HMBP is a document containing detailed information on the inventory of hazardous materials at a facility; Emergency Response Plans (ERP) and procedures in the event of a reportable release or threatened release of a hazardous material; a Site Safety Plan with provisions for training for all new employees and annual training, including refresher courses, for all employees in safety procedures in the event of a release or threatened release of a hazardous material; a site map that contains north orientation, loading areas, internal roads, adjacent streets, storm and sewer drains, access and exit points, emergency shutoffs, evacuation staging areas, hazardous material handling and storage areas, and emergency response equipment (CalEPA, 2022). City HMBP facilities are overseen by the SCEMD, Water Division staff manage the program internally.

## CALIFORNIA CODE OF REGULATIONS –HAZARDOUS WASTE REGULATIONS

Title 22, Division 4.5 of the California Code of Regulations (CCR) contains regulations pertaining to hazardous wastes (DTSC, 2022b). Pertinent chapters are described below.

- **Chapter 11** identifies a hazardous waste as a waste that exhibits the characteristics that may: (A) cause, or significantly contribute to, an increase in mortality or an increase in serious reversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed.
- **Chapter 12** includes standards applicable to hazardous waste generators, including pre-transport requirements, recordkeeping and reporting, and importing/exporting of hazardous wastes.
- **Chapter 13** includes regulatory requirements for the transport of hazardous waste. Hazardous waste transporters are required to be registered with DTSC. To obtain registration status, transporters must complete and submit a Hazardous Waste Hauler Application Form and proof of ability to provide adequate response in damages for DTSC review. Registered hazardous waste transporters are subject to random inspection by the Department of California Highway Patrol. Registered transporters must also report any changes in their operations to DTSC. Transporters must also receive an identification number from DTSC. This chapter also requires that immediate action is taken to protect human health and the environment in the event of a hazardous waste discharge.
- **Chapter 31** covers pollution prevention and hazardous waste source reduction and management review. This requires hazardous waste generators to conduct a source reduction and evaluation review and plan for hazardous waste, as well as a hazardous waste management performance report. This plan and report format is designed to prevent hazardous waste generation and to report hazardous waste generation amounts, respectively.

## CALIFORNIA CODE OF REGULATIONS – HAZARD COMMUNICATION

Title 8, Subchapter 7, Group 16, Article 109, §5194 contains regulations pertaining to hazards communication. According to this Section, employers must develop, implement, and maintain at the workplace a written hazard communication program for their employees. The program should include a list of the hazardous chemicals known to be present using a product identifier that is referenced on the appropriate safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas). The program must also include the methods the employer will use to inform employees of the hazards of non-routine tasks, and the hazards associated with chemicals contained in unlabeled pipes in their work areas.

## CALIFORNIA CODE OF REGULATIONS – FIRE PROTECTION AND PREVENTION

Title 8, Division 1, Chapter 4, Subchapter 4, Article 36 of the CCR contains regulations pertaining to Fire Protection and Prevention during construction. Some of the pertinent sections are described below:

- **Section 1921: Water Supply.** A temporary or permanent water supply required to properly operate firefighting equipment shall be made available as soon as combustible materials accumulate.
- **Section 1933: Fire Control.** Suitable fire control devices such as a small hose or portable fire extinguisher shall be available at locations where flammable or combustible liquids are stored.
- **Section 1965: Use of Flammable Liquids.** Flammable liquids shall be kept in closed containers when not actually in use and leakage or spillage of flammable or combustible liquids shall be disposed of promptly and safely. These liquids shall not be used near open flames or sources of ignition within 50 feet.
- **Section 1936: Service and Refueling Areas.** Flammable liquids shall be stored in approved closed containers or tanks. Smoking or open flames shall not be permitted in areas used for fueling, servicing fuel systems for internal combustion engines, receiving or dispensing flammable liquids. Conspicuous and legible signs prohibiting smoking shall be posted within sight of the person being served. The motors of all equipment being fueled shall be shut off during the fueling operation except for emergency generators, pumps, etc., where continuing operation is essential.
- **Section 1938: Construction Site, General.** Internal combustion engine powered equipment shall be located so that exhausts are well away from combustible materials.

## CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH

The Division of Occupational Safety and Health (Cal/OSHA) protects and improves the health and safety of working men and women in California and the safety of passengers riding on elevators, amusement rides, and tramways – through the setting and enforcing standards; providing outreach, education, and assistance; and issuing permits, licenses, certifications, registrations, and approvals (CDIR, 2022).

Cal/OSHA has requirements specific to fire protection and prevention during construction. Employers must establish an effective fire prevention program and ensure it is followed through all phases of construction work. Firefighting equipment must be freely accessible at all times, placed in a conspicuous location, and well-maintained. As soon as combustible materials accumulate, a water supply adequate to operate firefighting equipment must be made available. Workers must receive annual training in the use of fire extinguishers (Cal/OSHA, 2019).

### **3.8.2.3 Local Policies and Regulations**

#### SACRAMENTO COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT

Sacramento County's Environmental Management Department has been designated by CalEPA as the Sacramento region's CUPA. The CUPA is charged with the responsibility of conducting compliance inspections of hazardous materials facilities in Sacramento County and its incorporated cities, including the City of Sacramento. These facilities handle hazardous materials, generate or treat hazardous waste, and/or operate underground storage tanks. The CUPA uses education and enforcement to minimize the risk of chemical exposure to human health and the environment. The CUPA forwards important facility information to local fire prevention agencies that enables them to take appropriate protective action in the event of an emergency at regulated facilities. To legally store and use hazardous materials above the trigger quantities, users must apply for permits and demonstrate satisfactory compliance with regulations. The quantities that trigger disclosure are based on the maximum quantity on site at any time:

- 55 gallons, 500 pounds, or 200 cubic feet for 30 days or more at any time in the course of a year
- Any amount of hazardous waste
- Category I or II pesticides
- Explosives
- Extremely hazardous substances above the threshold planning quantity

#### CITY OF SACRAMENTO 2035 GENERAL PLAN

The City has identified the following goals and policies in the 2035 General Plan:

**GOAL LU 7.2: Industrial Development.** Maintain industrial districts that provide for the manufacturing of goods, flex space, and research and development that are attractive, compatible with adjoining nonindustrial uses, and well-maintained.

- **Policy LU 7.2.8: Hazardous Industries.** The City shall require industrial uses that use solvents and/or other toxic or hazardous materials to be sited in concentrated locations away from existing or planned residential, commercial, or employment uses and require the preparation of Hazardous Substance Management Plans to limit the possibility of contamination.

**GOAL PHS 3.1: Reduce Exposure of Hazardous Materials and Waste.** Protect and maintain the safety of residents, businesses, and visitors by reducing, and where possible, eliminating exposure to hazardous materials and waste.

- **Policy PHS 3.1.1: Investigate Sites for Contamination.** The City shall ensure buildings and sites are investigated for the presence of hazardous materials and/or waste contamination

before development for which City discretionary approval is required. The City shall ensure appropriate measures are taken to protect the health and safety of all possible users and adjacent properties.

- **Policy PHS 3.1.2: Hazardous Material Contamination Management Plan.** The City shall require that property owners of known contaminated sites work with Sacramento County, the State, and/or Federal agencies to develop and implement a plan to investigate and manage sites that contain or have the potential to contain hazardous materials contamination that may present as adverse human health or environmental risk.
- **Policy PHS 3.1.4: Transportation Routes.** The City shall restrict transport of hazardous materials within Sacramento to designated routes.
- **Policy PHS 3.1.5: Clean Industries.** The City shall strive to maintain existing clean industries in the city and discourage the expansion of business, with the exception of health care and related medical facilities that require on-site treatment of hazardous industrial waste.
- **Policy PHS 3.1.6: Compatibility with Hazardous Materials Facilities.** The City shall ensure that future development of treatment, storage, or disposal facilities is consistent with the County's Hazardous Waste Management Plan, and that land uses near these facilities, or proposed sites for the storage or use of hazardous materials, are compatible with their operation.
- **Policy PHS 3.1.8: Risks from Hazardous Materials Facilities.** The City shall review proposed facilities that would produce or store hazardous materials, gas, natural gas, or other fuels to identify, and require feasible mitigation for, any significant risks. The review shall consider, at a minimum, the following: presence of seismic or geologic hazards; presence of hazardous materials; proximity to residential development and areas in which substantial concentrations of people would occur; and nature and level of risk and hazard associated with a proposed project.

**Goal PHS 4.1: Response to Natural and Human-Made Disasters.** Promote public safety through planning, preparedness, and emergency response to natural and human-made disasters.

- **Policy PHS 4.1.1: Multi-Hazard Emergency Plan.** The City shall maintain and implement the Sacramento County Multi-Hazard Emergency Plan to address disasters such as earthquakes, flooding, dam or levee failure, hazardous material spills, epidemics, fires, extreme weather, major transportation accidents, and t all the wells because Project timing for individual well ism.

## CITY OF SACRAMENTO EMERGENCY OPERATIONS PLAN

The City of Sacramento Emergency Operations Plan (EOP) (2018) provides guidance for the City's response to extraordinary emergency situations associated with natural, man-made, and technological disasters. While the EOP is a preparedness document and is designed to be read,

understood, and exercised prior to an emergency, EOPs should be viewed as living documents because communities change and integrating the needs of individuals with different access and functional needs is a dynamic process. The City's Evacuation Plan for floods and other emergencies was developed as an annex to the City's EOP in 2008. The City's Office of Emergency Management (SacOEM) coordinates communication, planning, preparedness, response, and recovery during all hazards affecting the City.

## CITY OF SACRAMENTO LOCAL HAZARD MITIGATION PLAN

The Sacramento County Local Hazard Mitigation Plan (LHMP) (2016) is designed to guide hazard mitigation planning to better protect the people and property of the County and participating jurisdictions from the effects of natural disasters and hazard events. Components of the plan include hazard identification, asset inventory, risk analysis, loss estimation, and mitigation strategy to reduce the effects of hazards in the County.

## CITY OF SACRAMENTO CODE

Title 8 Health and Safety, Chapter 8.64 Hazardous Materials Disclosure:

- A. Hazardous substances and hazardous wastes present in the community may pose acute and chronic health hazards to individuals who live and work in this City, and who are exposed to such substances as a result of fires, spills, industrial accidents, or other types of releases or emissions.
- B. The people who live and work in this City have a right and need to know of the use and potential hazards of hazardous materials in the community in order to plan for and respond to potential exposure to such materials.
- C. Basic information on the location, type, and the health risks of hazardous materials uses, stored, or disposed of in the City is not now available to firefighters, health officials, planners, elected officials, and residents.

### 3.8.3 IMPACT ANALYSIS

#### 3.8.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to hazards and hazardous materials.

To identify potential hazards or hazardous material impacts on workers, the public, or the environment, literature and database reviews were conducted to survey available information and identify sensitive receptors. Databases and literature such as Google maps, the SWRCB's GeoTracker database, the DTSC EnviroStor database, CAL FIRE fire severity zone maps, and the City of Sacramento 2035 General Plan were reviewed.

Impacts to the public or environment resulting from the Project (defined in Chapter 2) were then assessed, and a significance determination was made based on the *Thresholds of Significance* (described below). An impact was determined to occur if the project would have an effect on the environment. The impact was found to be significant if after considering the features described in the *Project Description* (Chapter 2) and the required compliance with regulatory requirements, a threshold would be exceeded and a significant hazard to the public, health, or the environment would result as a direct or indirect result of the Project. For those impacts found to be significant, mitigation measures were identified and evaluated for their ability to reduce the identified impacts to less than significant levels.

For the purposes of the impact analysis, it was assumed the proposed Project complies with the applicable federal, state, and local laws, regulations, and policies summarized in the *Regulatory Framework* (Section 3.8.2). It was assumed local and state agencies would continue to enforce applicable requirements to the extent that they do so now.

### **3.8.3.2 Thresholds of Significance**

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018 an impact associated with hazards or hazardous materials would be considered significant if the Project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would it create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

### 3.8.3.3 Criteria Requiring No Further Evaluation

The Initial Study determined that the Project would not have significant impacts associated with the following criteria:

- **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.** The proposed well sites found within one of the four airport land use plan areas are located in developed residential areas and would require occasional site visits by City staff, resulting in short-term airport noise exposure. However, the proposed Project would not result in new residences near any airports nor would it create new long-term employment within these areas. In addition, the proposed Project would not include tall structures that could interfere with airport safety measures. Thus, no impacts would occur related to safety hazards or excessive noise within an airport land use plan area.
- **Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.** The proposed Project would not involve installation or maintenance of infrastructure that is typically associated with fire risk. Additionally, the proposed Project sites are not located within an area with wildfire hazard potential. Therefore, no impact associated with exposing people or structures to a significant risk of loss, injury, or death involving wildland fires would occur.

### 3.8.3.4 Impact Assessment

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**Impact HAZ-1      Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.**

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#### IMPACT HAZ-1 ANALYSIS

##### CONSTRUCTION IMPACTS

Construction machinery (i.e., cranes, trucks, and excavators) would be used throughout construction and destruction of the individual well sites associated with the proposed Project. This equipment may leak small amounts of petroleum products (i.e., gasoline and diesel) and automotive fluids during transportation, equipment use, and storage, which if not properly handled could create a hazard. Additionally, other chemicals (i.e., paints, adhesives, and solvents) would be required during construction that could also create a hazard if not properly handled.

Federal, state, and local regulations exist to limit the risk of exposure to hazardous materials from routine use or accident conditions by regulating hazardous material use, storage, transportation, and handling. The City is required to comply with these regulations (*Section 3.8.2 Regulatory Framework*), limiting the risk of release or exposure to hazardous materials as a result of the proposed Project. Conformance with the above regulations would include implementation of a

Stormwater Pollution Prevention Plan (SWPPP) to control contaminants in storm water discharges (including construction-related hazardous materials) through appropriate BMPs. While specific BMPs would be determined during SWPPP preparation based on site-specific characteristics (e.g., equipment types), BMPs would include standard industry measures and guidelines contained in the NPDES Construction General Permit and industry standard BMP handbooks. Conformance with federal hazardous materials transportation law (49 USC 5101 et seq.) and California Health and Safety Code Division 20, Chapter 6.5, Article 6.5 would require precautionary measures be taken during the routine transport of hazardous materials, such as testing and preparation of a transportation safety plan. According to California Health and Safety Code Division 20, Chapter 6.5, Article 13, used oil that may be produced from construction or operation of the Project would be recycled. Compliance with existing regulations would limit the risk of creating a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials, therefore the proposed Project would have a less than significant construction impact.

### OPERATION IMPACTS

The proposed Project requires use of treatment chemicals, as described in *Chapter 2 Project Description*, that if released to the environment could have a potentially significant impact. By design, chemicals for disinfection would, in general, be stored alone and away from other materials that they could mix with and potentially create an adverse reaction. Further details on chemical storage are described in *Chapter 2 Project Description*. Disinfection chemicals such as chlorine gas, sodium chloride salts for on-site generation of sodium hypochlorite, or liquid sodium hypochlorite for chlorine disinfection, and liquid or powdered/granular fluoride for fluoridation would be delivered to each proposed well site approximately once a month. Handling of treatment chemicals at each well would be conducted in accordance with requirements of the CalARP Program, which would ensure safe handling of all chemicals, including chlorine gas or sodium hypochlorite. Both chlorine gas and sodium hypochlorite are routinely used for disinfection at well sites across the City and standard measures for safe handling and use of chemicals would be implemented to ensure that operation of facilities would not create a hazard to the public or to the environment through the routine transport, use, or disposal of hazardous materials. The City is required by law to register a hazardous materials business plan with Sacramento County EMD for all stored chemical quantities exceeding County outlined minimums for these materials. The City is required to develop and maintain standard operating procedures for the delivery and dosing of chemicals at the proposed well sites with annual review and training of procedures. In the event chlorine gas is used at any proposed well sites, the City would follow all City and other local, state, and federal procedures for the safe transport, use, and storage of chlorine gas. Therefore, there would be no waste stream resulting from treatment byproducts and the proposed Project would have less than significant operation impacts.

### IMPACT HAZ-1 FINDING

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** No Mitigation Measures Required

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**Impact HAZ-2      Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.**

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## IMPACT HAZ-2 ANALYSIS

### CONSTRUCTION IMPACTS

As described under *Impact HAZ-1 Analysis*, construction activities would require the use of construction machinery, equipment, and other chemicals that could create a hazard through leaks or if not properly handled. However, the City would implement **Mitigation Measure HAZ-1**, which would develop a Hazardous Materials Management and Spill Prevention and Control Plan, in addition to implementing a SWPPP to limit the risk of hazardous material exposure through material use and accidents. In addition, the City would comply with all applicable federal, state, and local laws and regulations pertaining to the avoidance and, if necessary, mitigation of the accidental release of hazardous materials during construction.

Construction would require limited amounts of imported fill, if any, for above grade facilities and backfilling of trenches for laterals. It is expected that soils would be balanced on-site for each well site to the extent possible. Any imported fill that could be required would be sampled by the City to ensure the imported soil meets local and state regulatory requirements for clean, non-hazardous fill. Thus, there is limited potential to increase hazards to the public or the environment from imported fill. Destructured wells would be filled with cement which is non-hazardous. Therefore, construction of the proposed Project would have less than significant impacts.

### OPERATION IMPACTS

During operation of the Project, there is low risk of an accidental chemical spill during transport or use of chemicals at the well facility. The Project would be required to comply with various existing regulations (see response to *Impact HAZ-1* above) that would limit the risk of accidental hazardous material release during operations. For example, a Hazard Materials Business Plan, Emergency Response Plan, and Risk Management Plan would be prepared and implemented based on CalARP requirements presented in the *Regulatory Framework* to ensure training and procedures are in place for proper handling and use of chemicals in addition to proper handling of an accidental chemical spill. Safety measures would also be put in place to ensure proper storage containers, safety labeling, availability materials needed to readily absorb spills, and training for site workers. Therefore, operation of the proposed Project would have a less than significant impact.

### IMPACT HAZ-2 FINDING

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure HAZ-1 (see Section 3.8.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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**Impact HAZ-3      Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

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## IMPACT HAZ-3 ANALYSIS

### CONSTRUCTION IMPACTS

There are existing schools located within one-quarter mile of the proposed well sites. During construction of replacement wells and demolition of active wells, there would be emissions of toxic air pollutants, such as diesel particulate matter, within one-quarter mile of schools. As explained in *Section 3.2 Air Quality*, emissions would be below SMAQMD localized significance thresholds (LSTs). As explained in response *Impact HAZ-2* above, there is a risk of accidental release of hazardous materials during Project construction, including within one-quarter mile of schools. Implementation of **Mitigation Measure HAZ-1** would reduce impacts of an accidental release of hazardous materials. In addition, applicable federal, state, and local laws and regulations discussed in *Regulatory Framework* would limit the risk of hazardous emissions or hazardous materials exposure at the proposed Project sites. **Mitigation Measure HAZ-2** would reduce impacts of well construction at proposed well locations located at schools by requiring coordination with schools to schedule construction activity when school is not in session. Thus, construction of the proposed Project would have a less than significant impact.

### OPERATION IMPACTS

During operation, each proposed well would require storage of chemicals and transportation of hazardous chemicals to the facility once a month. Chlorine gas, which may be used for disinfection, is considered an extremely hazardous substance. As explained under *Impact HAZ-1* and *HAZ-2* above, each proposed well site would be compliant with local, regional, state, and federal regulations; therefore, there would be less than significant impacts related to hazardous material release associated with long-term Project operation. **Mitigation Measure HAZ-2** would also reduce impacts of delivery of chemicals at proposed well locations located at schools by coordinating with schools to schedule chemical deliveries before or after school hours. Thus, operation of the proposed Project would have a less than significant impact.

### IMPACT HAZ-3 FINDING

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure HAZ-1 and HAZ-2 (see Section 3.8.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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**Impact HAZ-4**      **Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would it create a significant hazard to the public or the environment.**

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#### IMPACT HAZ-4 ANALYSIS

Based on a search of the DTSC and SWRCB databases noted in *Section 3.8.1 Environmental Setting*, none of the well sites are located on a list of known hazardous materials sites compiled pursuant to Government Code Section 65962.5. As described in the City of Sacramento 2017 Groundwater Master Plan, the proposed well site locations were selected by targeting aquifers that have acceptable groundwater quality, thereby avoiding the need for treatment. Within the City's service area, the primary naturally occurring constituents of concern in the freshwater bearing aquifers include arsenic, manganese, and methane. Anthropogenic groundwater contamination is also a concern in the City's service area as a result of historical overlying land uses, such as those associated with military installations, dry cleaning operations, and chrome plating. Although wells were sited to avoid known groundwater contaminant plumes, it is possible that well sites could be affected by surface contamination.

The proposed Project could potentially create a significant hazard to the public or environment if wells were located in a groundwater plume as this would contaminate the City's water supply. **Mitigation Measure HAZ-3** would require a Phase 1 Environmental Site Assessment be completed as a part of pre-construction and surveying activities to confirm the proposed wells sites and associated laterals are not on or near contaminated sites/plumes. This would include well sites on former agricultural land that may have used organochlorinated pesticides, and well sites near heavily traveled roads which could have aerielly deposited lead in soils from tailpipe emissions from automobiles using leaded gasoline. **Mitigation Measure HAZ-3** would evaluate the hazard conditions prior to the start of construction and allow for re-siting in the event that hazardous conditions are found, which would reduce the risk to less than significant. **Mitigation Measure HAZ-3** would also allow for remediation to occur at the site in the event that contamination of soil or groundwater is identified at a proposed well site, with remediation oversight by the appropriate regulatory agency (i.e., Sacramento County, RWQCB and/or DTSC); however, remediation is outside the scope of the Project. Therefore, the proposed Project would have a less than significant impact.

#### IMPACT HAZ-4 FINDING

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure HAZ-3 (see Section 3.8.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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**Impact HAZ-5      Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.**

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## IMPACT HAZ-5 ANALYSIS

### CONSTRUCTION IMPACTS

During construction, temporary closures of roads could occur for installation of pipelines, which could conflict with an adopted emergency response plan or emergency evacuation plan, as in the City's Emergency Operations Plan and Local Hazard Mitigation Plan creating a potentially significant impact. With the implementation of **Mitigation Measure TRA-1**, coordination with local emergency responders would be required regarding lane closures and the potential for impairing or physically interfering with emergency response or evacuation would be reduced to less than significant with mitigation.

Demolition of existing wells would not require temporary closures of roads and therefore would be less than significant.

### OPERATION IMPACTS

During operation, the Project facilities would require regular visits for well maintenance as well as chemical delivery. These minimal operational activities would not interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, Project operations would have a less than significant impact.

### IMPACT HAZ-5 FINDING

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure TRA-1 (see Section 3.8.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

### **3.8.3.5 Mitigation Measures**

#### MITIGATION MEASURE HAZ-1: HAZARDOUS MATERIALS MANAGEMENT AND SPILL PREVENTION AND CONTROL PLAN

Before construction begins, the City shall prepare a Hazardous Materials Management Spill Prevention and Control Plan that includes a project-specific contingency plan for hazardous materials and water operations. The Plan will be applicable to construction activities and will establish policies and procedures according to applicable codes and regulations, including but not limited to the California Building and Fire Codes, and federal and OSHA regulations. The Plan will include, but is not limited to the following:

- A discussion of hazardous materials management, including delineation of hazardous material storage areas, access and egress routes, waterways, emergency assembly areas, and temporary hazardous waste storage areas;
- Notification and documentation of procedures; and
- Spill control and countermeasures, including employee spill prevention/response training.

### MITIGATION MEASURE HAZ-2: WELL CONSTRUCTION AND CHEMICAL DELIVERIES AT SCHOOLS

The City will coordinate with school officials for proposed well sites located at schools to schedule well construction when school is not in session and schedule chemical deliveries before or after school hours.

### MITIGATION MEASURE HAZ-3: ENVIRONMENTAL SITE ASSESSMENT AND REMEDIATION OR WELL RELOCATION

After exploratory drilling and before construction begins, a Phase 1 Environmental Site Assessment will be conducted for each proposed municipal well site to identify contaminated sites at or near each proposed well site that pose a hazard for construction or to the City's potable water supply. In the event that a recognized environmental concern exists, additional investigation would be conducted, typically under a Phase II Environmental Site Assessment, to identify the presence and extent of any contamination that would need remediation, or a Well Relocation Plan would be developed to determine if the well location could be moved to a location that is not affected by contaminant releases. Remediation, if needed, would be conducted in accordance with federal and state requirements for remediation of soil and/or groundwater contamination with oversight by the appropriate local and/or state agency, such as the County of Sacramento, RWQCB and/or DTSC.

#### **3.8.3.6 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Update Master EIR is incorporated by reference and as a City project, the proposed Project adheres to the City's policies. The 2035 General Plan Master EIR found that impacts related to hazards and hazardous materials within the City's planning area are less than significant when the General Plan Policies are implemented. The proposed Project adheres to the City's policies and the Project was adequately addressed in the 2035 General Plan Master EIR analysis and thereby found to have a cumulatively less than significant impact related to hazards and hazardous materials.

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### ***3.8.5 HAZARDS AND HAZARDOUS MATERIALS ACRONYMS AND ABBREVIATIONS***

CalARP	California Accidental Release Prevention
CCR	California Code of Regulations
CAL FIRE	California Department of Forestry and Fire Protection
CDIR	California Department of Industrial Regulations
DTSC	California Department of Toxic Substances Control
CHP	California Highway Patrol
CUPA	Certified Unified Program Agency
City	City of Sacramento

CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DTSC	Department of Toxic Substances Control
EMA	Emergency Management Agency
EOP	Emergency Operations Plan
ERP	Emergency Response Plans
FEMA	Federal Emergency Management Agency
HSWA	Hazardous and Solid Waste Amendments
HMBP	Hazardous Material Business Plan
HMRPs	Hazardous Materials Release Response Plans and Inventories
HMTA	Hazardous Materials Transportation Act of 1975
IFC	International Fire Code
LHMP	Local Hazard Mitigation Plan
LRA	Local responsibility area
OSHA	Occupational Safety and Health Administration
RWQCB	Regional Water Quality Control Board
RCRA	Resource Conservation and Recovery Act
SACOG	Sacramento Area Council of Governments
SCEMD	Sacramento County Environmental Management Department
SMAQMD	Sacramento Metropolitan Air Quality Management District
SRCSD	Sacramento Regional County Sanitation District
SRA	State Responsibility Area
SWRCB	State Water Resources Control Board
SWPPP	Stormwater Pollution Prevention Plan
TSCA	Toxic Substances Control Act of 1976
USEPA	U.S. Environmental Protection Agency

## 3.9 HYDROLOGY AND WATER QUALITY

This section evaluates the potential hydrology and water quality impacts associated with implementation of the proposed Project. For the purpose of this analysis, the study area includes the entire City of Sacramento as well as the North and South American Groundwater Subbasins.

### 3.9.1 ENVIRONMENTAL SETTING

#### 3.9.1.1 Surface Water

The City of Sacramento is located within the Sacramento River Basin, which encompasses 27,000 square miles and is bound by the Sierra Nevada to the east, the Coast Ranges to the west, the Cascade and Trinity Mountains to the north, and the Sacramento-San Joaquin Delta to the southeast (City of Sacramento, 2015). The Sacramento River Basin is the largest river basin in California and captures approximately 22 million acre-feet of annual precipitation.

The American River watershed encompasses approximately 1,900 square miles from the western slope of the Sierra Nevada to the City of Sacramento (City of Sacramento, 2015). The American River is a tributary to the Sacramento River and includes Folsom Dam which is owned and operated by the US Bureau of Reclamation (City of Sacramento, 2015). The Sacramento and American Rivers are shown on **Figure 1.1-1** in the Introduction of this EIR.

#### SURFACE WATER HYDROLOGY

The City of Sacramento is located at the confluence of the Sacramento and American Rivers in the southern portion of the Sacramento River Basin (City of Sacramento, 2015). The Sacramento River forms the City's western boundary from Interstate 80 to south of the Pocket Area. The American River transects the City, flowing west to join the Sacramento River north of Highway 50. Eight small tributaries of the Sacramento River pass through and provide drainage for the City of Sacramento. These tributaries include Dry Creek, Magpie Creek, and Arcade Creek in the northern portion of the City, and Morrison Creek, Florin Creek, Elder Creek, Unionhouse Creek, and Laguna Creek in the southern portion of the City. These creeks, in addition to local surface water drainages such as Chicken Ranch and Strong Ranch sloughs, form the major natural drainages within the City of Sacramento. Man-made drainage canals, such as the Natomas East Main Drainage Canal and the East, West, and Main Drainage Canals provide drainage for a large portion of the urbanized areas within the City that are not served by the combined sewer system or the City's sumps.

#### SURFACE WATER QUALITY

The City of Sacramento is regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB) which is one of nine RWQCBs overseen by the California State Water Resources Control Board (SWRCB). CVRWQCB is the primary agency that regulates water quality and establishes water quality objectives, plans, and policies (which are described in more detail below in Section 3.9.2) for surface waters based on beneficial uses identified in the CVRWQCB's Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan). The beneficial

uses of the Sacramento and American rivers identified by the CVRWQCB include municipal (MUN), agricultural (AGR), and recreational water supply (REC) (CVRWQCB, 2019). Other beneficial uses include freshwater habitat (WARM and COLD), migration (MIGR), spawning grounds (SPWN), wildlife habitat (WILD), navigation on the American and Sacramento Rivers, and industrial (water supply (IND) and power generation (POW)) uses on the American River (City of Sacramento, 2015).

Ambient water quality in the Sacramento and American Rivers is influenced by natural and artificial sources including soil erosion, discharges from industrial and residential wastewater plants, stormwater runoff, agriculture, recreation activities, mining, timber harvesting, and flora and fauna (City of Sacramento, 2015). The reaches of the Sacramento and American Rivers that flow through the urban areas of Sacramento are considered impaired for certain fish consumption and aquatic habitat. These reaches are also listed on the United States Environmental Protection Agency (EPA) approved 2020-2022 California 2020-2022 Integrated Report Final 303(d) List of impaired water bodies (CVRWQCB, 2022). The Sacramento River is listed as impaired under the 303(d) list for fipronil, pyrethroids, water temperature, and toxicity while the American River is listed for bifenthrin, indicator bacteria, polychlorinated biphenyls (PCBs), Pyrethroids, temperature, water, and toxicity (CVRWQCB, 2022). Other major creeks, drainage canals, sloughs, and estuaries within the County of Sacramento are listed as impaired for metals (copper, mercury, zinc), nutrients, invasive species, water temperature, pathogens, pesticides salinity, total toxics, toxic organics, and trash.

Urban runoff constituents within the City of Sacramento vary based on geographic features of the area, land use, vehicle traffic, and percent of impervious surface. Seasonally, pollutants vary depending on the weather pattern. During the seasonal dry period from May to October, pollutants contributed by vehicle exhaust, vehicle and tire wear, crankcase drippings, spills, and atmospheric fallout accumulate within the urban watershed (City of Sacramento, 2015). The first precipitation during the early portion of the wet season (November) washes these pollutants into the stormwater runoff, which may result in elevated pollutant concentrations in the initial wet weather runoff. Concentrations of heavy metals present in dry weather runoff, which is generally generated by landscape irrigation and street washing, are typically lower than concentrations measured in wet weather runoff (City of Sacramento, 2015).

### **3.9.1.2 Groundwater**

#### REGIONAL SETTING

The proposed Project sites are located across the North American Subbasin (California Department of Water Resources [DWR] Basin Number 5-021.64) and South American Subbasin (DWR Basin Number 5-021.65), and are a part of the Sacramento Valley Groundwater Basin. The North American Subbasin is generally bounded to the north by the Bear River, the west by the Feather River, and south by the Sacramento and American Rivers (DWR, 2006 and SGAGSA et al., 2021). The eastern boundary represents the approximate edge of the alluvial basin. The South American Subbasin is bounded on the east by the Sierra Nevada, on the west by the Sacramento River, on the north by the American River, and on the south by the Cosumnes and Mokelumne Rivers (DWR, 2004 and NDGSA et al., 2021).

The CVRWQCB designates beneficial uses for groundwater. Unless otherwise designated by the CVRWQCB, all groundwater in the CVRWQCB Region is considered to be suitable or potentially suitable, at a minimum, for municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND) and industrial process supply (PRO) (CVRWQCB, 2018).

Both the North American Subbasin and South American Subbasin are designated by DWR as high priority basins and are subject to the provisions of the Sustainable Groundwater Management Act (SGMA). The conditions identified in the Groundwater Sustainability Plans (GSPs) for these subbasins are described in the following sections.

The Sacramento Valley Groundwater Basin is largely filled with sediments, derived from the Sierra Nevada foothills, and contain fresh water (e.g., alluvial aquifer). The sediments consist of alternating layers of clay, silts, sand, and gravel. The sand and gravel layers are not continuous across the entire North American Subbasin since the deposits originate from rivers and creeks. Although the sediments are not present in continuous layers, they are interconnected. As none of the geologic sediments are impermeable, some recharge occurs in all areas that are not covered by impermeable surfaces.

At various locations in the North American and South American Subbasins, the alluvial aquifers are connected to the rivers and streams flowing through the subbasins. These areas are known as areas of interconnected surface waters (ISWs). ISWs are defined in the California water code [23-CCR §354(o)] as “surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted.” These ISWs are generally found along portions of the American, Bear, Feather, Sacramento and Consumnes Rivers and along some creeks.

### *NORTH AMERICAN SUBBASIN*

#### **North American Subbasin Groundwater Levels**

Groundwater levels in the western portion of the North American Subbasin are generally stable through time dating back to early in the 20<sup>th</sup> century. Groundwater levels in the central part of the North American Subbasin showed long-term declines in the north-central portion until the mid-1960s and in the south-central portion until the mid-1990s. Once conjunctive use programs<sup>6</sup> began to be implemented in the North American Subbasin in the mid-1990s, groundwater levels stopped declining and began to recover. Groundwater levels in the eastern portion of the North American Subbasin have been generally stable since the 1970s; however, they do show declines during dry periods with recovery during wet periods (SGAGSA et al., 2021).

Under the GSP, sustainable yield was defined as the amount of groundwater that can be withdrawn on a long-term average basis without causing undesirable results. While these estimates are provided as a reference herein as they are intended to assist in achieving sustainability when

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<sup>6</sup> Conjunctive use is the coordinated management of surface water and groundwater through a collaboration of municipalities, water districts, and agencies.

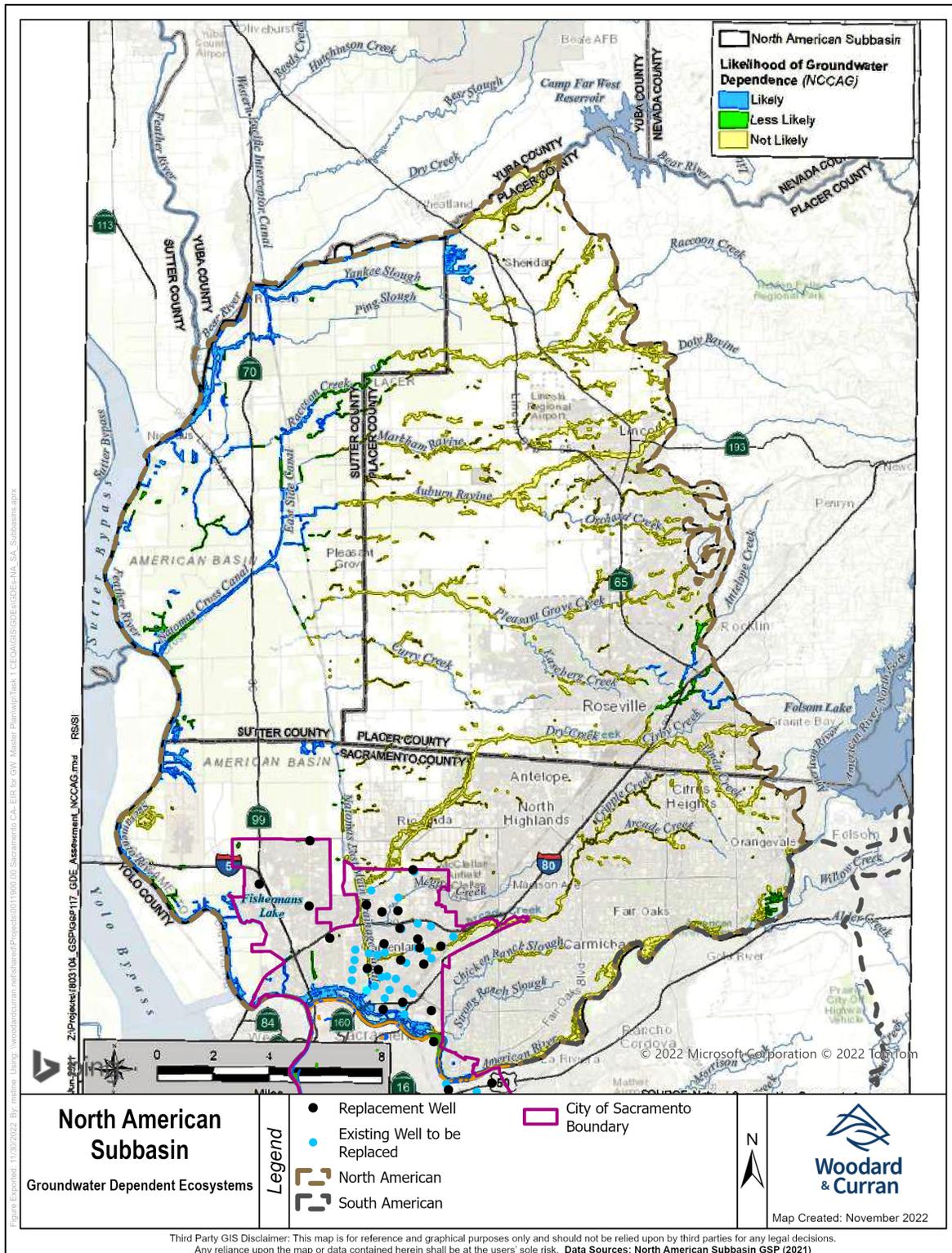
identifying future projects and management actions, SGMA does not incorporate these estimates directly into the sustainable management criteria; sustainability under the SGMA is demonstrated by avoiding undesirable results of the sustainability indicators.

### **North American Subbasin Groundwater Dependent Ecosystems**

Groundwater dependent ecosystems (GDEs) are defined in the GSP Regulations as ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface, (CCR, Title 23, Division 2, Chapter 1.5, Subchapter 2). GDEs were identified in the GSP (2021) along canals and natural waterways that are used to convey surface water to agricultural users, as shown in **Figure 3.9-1**. In some cases, GDEs were identified in areas that could be supported by groundwater, but it appears their primary source of supply is groundwater pumped from wells (SGAGSA et al., 2021).

A comparison of Project locations to GDE locations, as shown on **Figure 3.9-1**, indicates that none of the North American Subbasin Project sites are located within or near potential GDEs. Distances to GDEs, potentially likely GDEs, and potentially unlikely GDEs for each replacement well and existing well to be replaced in the North American Subbasin are presented in **Table 3.9-1** and **Table 3.9-2**, respectively. In all cases, existing and replacement City wells are screened to depths around 300 feet below the ground surface, well below the root zone of GDEs, as discussed in *Section 3.3 Biological Resources*.

**Figure 3.9-1: Potential GDEs in the North American Subbasin**



**Table 3.9-1: Distance to Nearest GDE for Each Replacement Well**

Replacement Well Number	Distance to Nearest GDE (ft)	Distance to Nearest Likely a Potential GDE (ft)	Distance to Nearest Unlikely a Potential GDE (ft)
Well 1	2,658	4,961	5,809
Well 2	150	4,068	8,101
Well 3	6,023	1,872	4,800
Well 4	7,670	7,658	7,380
Well 5	588	1,242	1,208
Well 6	1,937	3,240	2,234
Well 7	165	659	9
Well 8	12,616	5,563	5,250
Well 9	13,861	2,679	7,817
Well 10	11,530	16,448	1,343
Well 11	13,705	14,446	5,686
Well 12	11,385	3,878	7,704
Well 13	12,886	5,117	9,745
Well 14	8,971	9,166	3,848
Well 15	8,791	3,853	5,858
Well 16	8,184	8,981	8,152
Well 17	2,191	8,500	1,494
Well 19	17,600	411	6,113
Well 20	5,460	7,649	16,595
Well 21	10,863	16,714	4,561
Well 22	6,903	13,071	2,992
Well 23	2,004	7,472	0
Well 24	200	3,718	2,563
Well 25	1,436	4,201	3,958
Well 26	12,597	12,535	3,743
Well 27	10,910	14,990	0
Well 28	21,915	13,939	1,619
Well 29	13,795	9,724	793
Well 30	6,620	12,041	578
Well 31	9,816	12,329	2,438
Well 32	14,447	16,794	150
Well 33	5,421	2,202	4,904
Well 34	2,205	4,994	3,002
Well 35	670	0	488
Well 36	1,580	3,051	7,556
Well 37	11,174	3,885	7,504
Well 38	1,580	1,259	1,556
Well 39	9,837	8,413	9,141

**Table 3.9-2: Distance to Nearest GDE for Existing Wells to be Decommissioned**

Existing Well Number	Distance to Nearest GDE (ft)	Distance to Nearest Likely a Potential GDE (ft)	Distance to Nearest Unlikely a Potential GDE (ft)
Well 83	2,315	1,192	2,090
Well 91	1,432	1,269	1,231
Well 92	2,604	1,866	1,832
Well 93	3,087	2,432	2,142
Well 94	3,573	3,001	1,429
Well 107	1,683	922	1,483
Well 109	401	1,750	1,698
Well 110	1,967	1,611	1,357
Well 111	2,315	1,990	1,827
Well 112	2,291	2,075	2,006
Well 114	2,114	1,938	1,884
Well 116	2,881	2,595	2,492
Well 120	3,795	3,555	1,392
Well 122	3,939	3,759	2,252
Well 123	3,931	3,080	0
Well 124	4,244	3,243	200
Well 125	4,460	3,592	218
Well 126	4,710	4,498	0
Well 127	4,689	4,507	0
Well 129	5,707	5,235	4,201
Well 131	6,131	5,937	3,798
Well 133	6,148	5,679	875
Well 134	6,252	5,574	3,565
Well 137	5,127	5,121	116
Well 138	6,122	5,900	4,130
Well 139	215	1,122	770
Well 141	2,156	2,393	2,170
Well 142	3,094	2,651	2,595
Well 143	3,917	3,656	624
Well 144	4,387	4,224	1,186
Well 146	918	950	750
Well 151	0	1,230	1,185
Well 153A	7,452	6,695	0
Well 154	9,037	8,439	1,191
Well 155	5,736	5,756	162

Existing Well Number	Distance to Nearest GDE (ft)	Distance to Nearest Likely a Potential GDE (ft)	Distance to Nearest Unlikely a Potential GDE (ft)
Well 156	1,207	1,157	1,093
Well 157	0	676	630
Well 158	1,418	1,530	1,491
Well 159	1,582	2,229	0

### North American Subbasin Water Quality

Generally, groundwater quality in the North American Subbasin is suitable for nearly all uses, with the exception of contamination plumes (discussed below) and localized, naturally-occurring and human-caused water quality issues, which may affect the supply, beneficial uses, and potential management of groundwater in the North American Subbasin (SGAGSA et al., 2021). Total dissolved solids (TDS) and nitrate were identified in the North American Subbasin GSP (2021) as constituents that represent general groundwater quality conditions in the Subbasin, with some wells displaying upward trends. Nitrate is below the drinking water standards for all wells and TDS exceeds the drinking water standards in some wells, predominately in the western and eastern portions of the North American Subbasin. The higher salinity concentrations are generally considered to be attributed to natural sources.

There are a few large groundwater contamination sites and multiple smaller sites that could affect supply. The two most notable sites are the former McClellan Air Force Base remediation site and the Aerojet Superfund Site. Cleanup activities, as overseen by EPA, SWRCB, and the California Department of Toxic Substances Control (DTSC), have been in progress for years and contaminants appear to be contained (SGAGSA et al., 2021). None of these remediation sites are near proposed Project sites as shown in **Figure 3.9-3**.

### SOUTH AMERICAN SUBBASIN

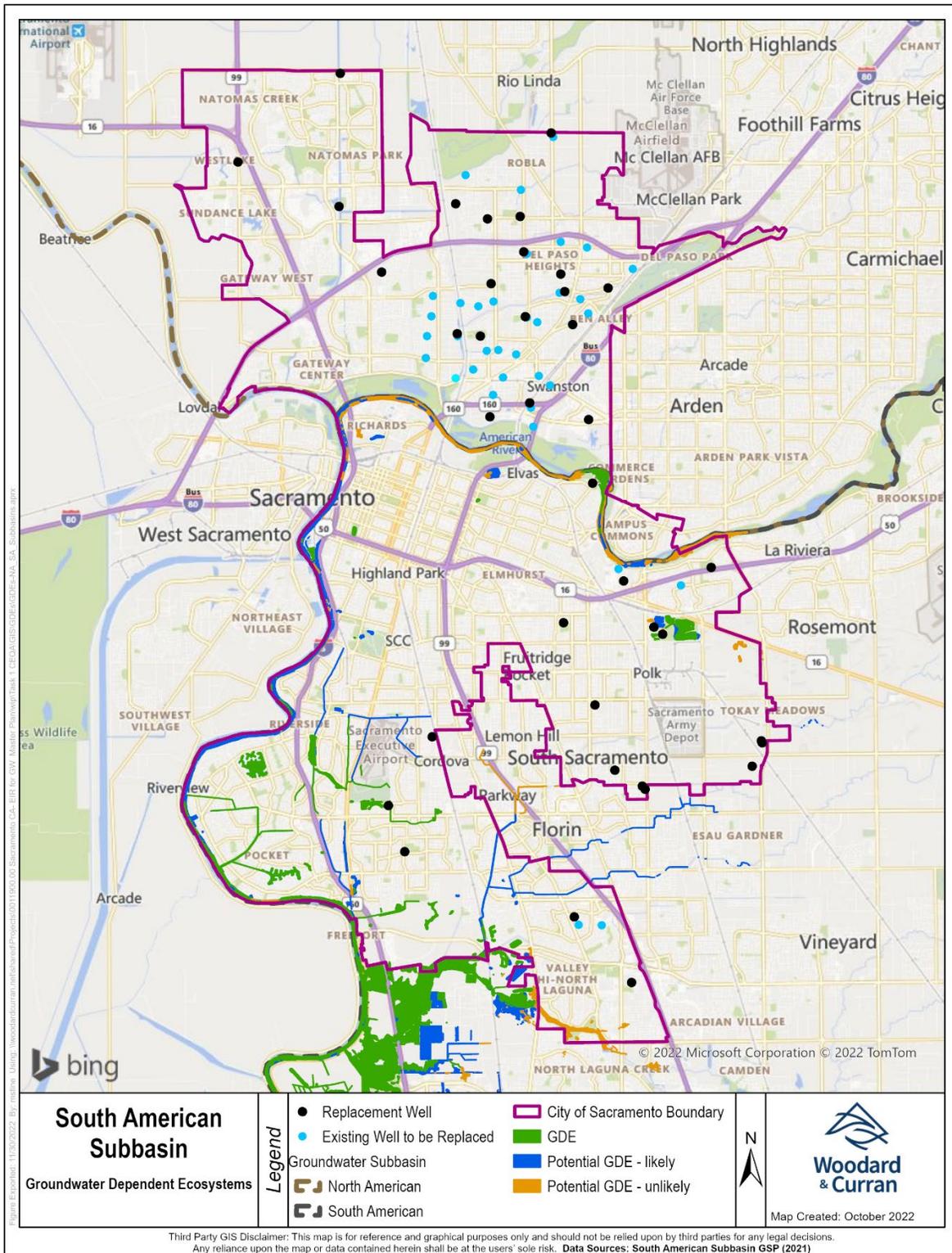
#### South American Subbasin Groundwater Levels

The South American Subbasin has one primary aquifer which is divided into an upper and lower aquifer. The upper aquifer is typically high quality and is typically used for private domestic or irrigation wells. The lower aquifer is also of high quality and capable of producing high yields and therefore used for larger municipal supply wells. Groundwater levels in the western portion of the South American Subbasin have been generally increasing since the 1980s. Groundwater levels in some areas of the eastern portion of the South American Subbasin show decreases in groundwater levels despite the lack of significant changes in land or water use. There is also little to no land subsidence in the South American Subbasin (NDGSA et al., 2021).

### South American Subbasin Groundwater Dependent Ecosystems

The South American Subbasin GSP (2021) found that the long-term historical relationships between potential GDEs connected to surface water for 100 percent of the seasons were primarily located along the western boundary (or the Sacramento River) and southern boundary (or the Consumnes River Preserve region) of the South American Subbasin (NDGSA et. al., 2021) (see **Figure 3.9-2**). The South American Subbasin GSP (2021) classified part of Granite Park (which is the location for proposed well sites 7 and 35) and William Chorley Park (which is the location for proposed well site 2) as containing potential GDEs. Well 7 is approximately 165 feet from a GDE, 659 feet from a potentially likely GDE, and 9 feet from a potentially unlikely GDE. Well 35 is approximately 670 feet from a GDE, 0 feet from a potentially likely GDE, and 488 feet from a potentially unlikely GDE. Well 2 is approximately 150 feet from a GDE, 4,068 feet from a potentially likely GDE, and 8,101 feet from a potentially unlikely GDE. Distances to GDEs, potentially likely GDEs, and potentially unlikely GDEs for the replacement wells and existing wells that need to be replaced in the South American Subbasin can be found in **Table 3.9-1** and **Table 3.9-2**, respectively. In all cases, existing and replacement City wells are screened at depths below the root zone of GDEs, as discussed in *Section 3.3 Biological Resources*.

**Figure 3.9-2: GDE Likelihood Classification of Potential GDEs from 2005-2018 in the South American Subbasin**

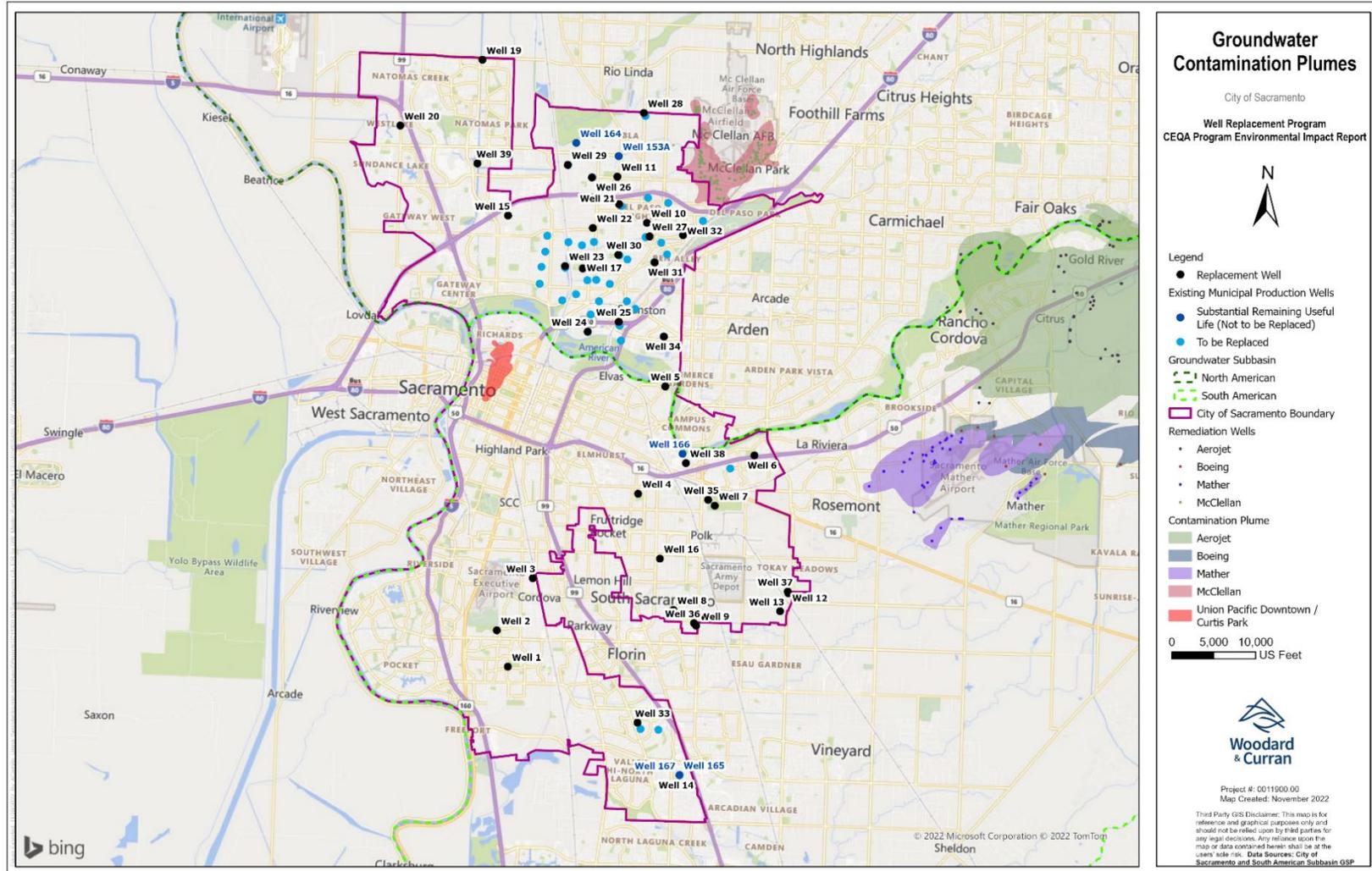


### South American Subbasin Water Quality

Groundwater quality in the South American Subbasin is generally of good quality and meets local needs for municipal, domestic, and agricultural uses. Several water quality parameters including nitrate, TDS, arsenic, hexavalent chromium, and per- and polyfluoroalkyl substances (PFAS) have been monitored at numerous wells in the South American Subbasin over time. In data spanning multiple decades, nitrate as N (nitrogen) concentrations have remained consistently below the maximum contaminant level (MCL) of 10 mg/L as N and TDS concentrations have generally been lower than the recommended secondary maximum contaminant level (SMCL) of 500 mg/L. Arsenic data collected from the 1980s show concentrations exceeding the MCL of 10 µg/L in isolated areas in the upper aquifer of the South American Subbasin, with few exceedances in the lower aquifer. Hexavalent chromium and PFAS were monitored beginning in 2001 and 2017, respectively. Hexavalent chromium concentrations were consistently below the proposed MCL of 10 µg/L. PFAS (Perfluorooctanoic acid [PFOA] and perfluorooctane sulfonate PFOS) concentrations have been detected above SWRCB-issued reporting levels at some wells in the South American Subbasin (NDGSA et al., 2021). It is noted that when concentrations approach one-half the MCL, as has occurred with many of the City's existing wells, the SWRCB Division of Drinking Water (DDW) requires more frequent monitoring and the City begins to consider taking affected wells out of service.

Aerospace, industrial, manufacturing, and defense industries have been a key part in the development of the greater Sacramento area since the late 1950s (NDGSA et al., 2021). Many of these industries (i.e., Aerojet, Boeing, Mather Air Force Base, McClellan Air Force Base, and Union Pacific Downtown/Curtis Park) have used and disposed of toxic and unknown substances onsite resulting in the contamination of groundwaters and soils in specific areas. Several remediation actions have and are being performed to protect human health and the environment under various state and federal regulatory programs. None of these remediation sites are near proposed Project sites, as shown in **Figure 3.9-3**. Additionally, it is noted that the analysis conducted for well siting considered screen depth of the well and the surface horizontal distance of the well from known groundwater contamination plumes in determining whether or not pumping from the well would impact plume migration.

Figure 3.9-3: Groundwater Contamination Plumes



## GROUNDWATER EXTRACTION

Within the portion of the North American Subbasin underlying Sacramento County, between 2013 and 2015, total groundwater extraction was estimated to be between 85,994 AF in 2015 up to 102,577 AF in 2013 (Sacramento Groundwater Authority, 2016). Between 2016 and 2020, the City extracted 16,723 AF in 2016 and 19,022 AF in 2020 (City of Sacramento, 2021). Within the South American Subbasin, between 2005 and 2015, groundwater production ranged from 202,379 AF in 2011 up to 256,954 AF in 2008 (Sacramento Central Groundwater Authority, 2016). The sustainable yield for the North American Subbasin is 336,000 AFY, as reported in the GSP (SGAGSA et al., 2021). Sustainable yield was estimated as part of the South American Subbasin GSP as 235,000 AFY as a long-term average, ranging from 210,000 AFY to 270,000 AFY in any given year (NDGSA et al., 2021). As reported in the City's most recent 2020 UWMP, between 2016 and 2020, the City's groundwater extraction from the North and South American subbasins in total ranged from 17,586 AF in 2016 to 25,920 AF in 2017 (City of Sacramento, 2021). The City's current pumping occurs primarily from the North American Subbasin, ranging from 16,723 AF in 2016 to 23,301 AF in 2017. The City's groundwater extraction from the South American Subbasin was approximately 863 AF in 2016 and 2,619 AF in 2017 (City of Sacramento, 2021).

The City has historically relied on groundwater to meet 15 to 20 percent of its water supply urban demands, making groundwater an important component of the City's water supply portfolio. The City's remaining urban demand is met by surface water from the Sacramento and American rivers. Currently, the City has 22 active municipal wells permitted by the DDW in the North American Subbasin and two (2) active municipal wells in the South American Subbasin permitted by DDW. Additionally, the City has four (4) active municipal wells permitted by DDW that are currently offline in the North American Subbasin and three (3) municipal wells pending permitting by DDW in the South American Subbasin. The list and the locations of the City's active wells in each subbasin are presented in *Section 2 Project Description* (**Table 2.5-1** and **Table 2.6-1**). The list and locations of the replacement wells that would be operated under the proposed Project are also presented in *Section 2 Project Description* (**Table 2.6-1** and **Figure 2.6-1**).

As of December 2022, eight of the City's municipal wells (Wells 83, 92, 111, 123, 127, 144, 154 and 159) are offline due to various water quality concerns. Wells 92 and 111 are not yet permitted by DDW.

### **3.9.1.3 Flood Hazards**

Over the course of the City's history, floods have been the most frequent and considerable natural hazard affecting the City's environment and economy (City of Sacramento, 2015). The entirety of the City of Sacramento falls within the 100-year to 500-year flood zone. The majority of the City also lies within the 200-year floodplain (City of Sacramento, 2015). High water levels along the Sacramento and American Rivers are a common occurrence in the winter and early spring months due to increased flow from storm runoff and snowmelt. An extensive system of dams, levees, overflow weirs, drainage pumping plants, and flood control bypass channels strategically located

on the Sacramento and American Rivers was established to protect the area from flooding. These facilities control floodwaters by regulating the amount of water passing through a particular reach of either river. The amount of water flowing through the levee system can be controlled from outside of the City of Sacramento by Folsom Dam on the American River and the reserve overflow area of the Yolo Bypass on the Sacramento River. The operation of Folsom Dam directly affects most of the water utilities on the American River system. The Sacramento Weir of the Sacramento River bypass system is the key structure protecting the City of Sacramento during high flows on the Sacramento River, diverting flows through the Sacramento Bypass into the Yolo Bypass for safe passage to the Sacramento-San Joaquin Delta.

### **3.9.1.4 Tsunamis and Seiches**

The City is not located within a tsunami (a large ocean wave caused by earthquakes or major ground movement) roundup area nor is it susceptible to seiches (a large wave generated in an enclosed body of water such as a lake, which is also typically caused by an earthquake) (City of Sacramento, 2015).

## **3.9.2 REGULATORY FRAMEWORK**

This section describes laws and regulations at the federal, state, and local level that may apply to the project.

### **3.9.2.1 Federal Policies and Regulations**

#### **CLEAN WATER ACT**

The Clean Water Act (CWA) of 1977 seeks to restore and maintain the chemical, physical, and biological integrity of the nation's waters by implementing water quality regulations under the EPA. Multiple sections of the CWA apply to activities near or within surface or groundwater. Regulatory authorities exist on both the state and federal levels for the control of water quality in California. The EPA is a federal agency, governed by the CWA, responsible for water quality management.

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. Section 303 of the CWA requires states to establish water quality standards consisting of designated beneficial uses of water bodies and water quality standards to protect those uses for all Waters of the United States (including the Sacramento River). Under 303(d) of the CWA, states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are the water that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water on the lists and develop action plans to improve water quality. This process includes development of Total Maximum Daily Loads (TMDL) that set discharge limits for non-point source pollutants.

Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants. The CWA prohibits the discharge of pollutants to navigable waters from a point source unless authorized by a NPDES permit.

## NATIONAL POLLUTANT DISCHARGE AND ELIMINATION SYSTEM (NPDES) PROGRAM

The NPDES permit system was established to regulate municipal and industrial discharges to surface waters. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in discharges. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits.

The goal of NPDES stormwater regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of structural and non-structural Best Management Practices (BMPs). BMPs can include the development and implementation of various practices including educational measures (workshops informing public of what impacts results when household chemicals are dumped into storm drains), regulatory measures (local authority of drainage facility design), public policy measures (label storm drain inlets as to impacts of dumping on receiving waters), and structural measures (filter strips, grass swales and detention ponds).

### **3.9.2.2 State Policies and Regulations**

#### CVRWQCB NPDES PERMIT

The CVRWQCB adopted a general NPDES permit for short-term discharges of small volumes of wastewater from certain construction-related activities. Permit conditions for the discharge of these types of wastewaters to surface water are specified in "General Order for Dewatering and Other Low-Threat Discharges to Surface Waters" (Order No. 5-00-175, NPDES No. CAG995001). Discharges may be covered by the permit provided they are (1) either four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 million gallons per day (mgd). Construction dewatering, well development water, pump/well testing, and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the permit. The general permit also specifies standards for testing, monitoring, and reporting, receiving water limitations, and discharge prohibitions.

#### SWRCB/CVRWQCB DEWATERING PERMIT

If a proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under SWRCB's General Water Quality Order (Low Threat General Order) 2003-0003 or the CVRWQCB's B Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the CVRWQCB prior to beginning discharge.

## SWRCB CONSTRUCTION ACTIVITY STORMWATER PERMIT

The California Construction Stormwater Permit (Construction General Permit) (General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002), adopted by the SWRCB, regulates construction activities resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of storm water to surface waters from construction sites and prohibits the discharge of materials other than storm water and authorized non-storm water discharges.

The Construction General Permit requires that all applicants develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies BMPs such as erosion and sediment controls, site housekeeping, and other control measures to reduce pollutants in storm water discharges, and perform monitoring, inspections and maintenance of all BMPs. In order to obtain coverage under the NPDES Construction General Permit, an applicant must file a Notice of Intent with the SWRCB prior to the start of construction.

## MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT

The CVRWQCB issued the MS4 Permit (Order No. R5-2008-0142; NPDES NO. CAS08259) to municipal permittees in Sacramento County including the City of Sacramento, to control pollutants in storm water discharges to local receiving waters. The City of Sacramento implements a Stormwater Quality Improvement Program (SQIP) that includes pollution reduction activities for construction sites, industrial sites, illegal discharges and illicit connections, new development, and municipal operations. The Program also includes a public education effort, target pollutant reduction strategy and monitoring program.

## PORTER-COLOGNE WATER QUALITY CONTROL ACT

The SWRCB and CVRWQCB have established water quality standards, as required by Section 303 of the CWA and the Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Act requires the State to designate beneficial uses, water quality objectives for surface water and groundwater, and implement programs for achieving water quality objectives. The Basin Plan prepared by the CVRWQCB, established numerical and narrative water quality standards and objectives to protect the beneficial uses of rivers and their tributaries within its jurisdiction. Water quality objectives for the Sacramento River are specified in the Basin Plan prepared by the CVRWQCB in compliance with the Federal CWA and the California Water Code (section 13240). Because the City of Sacramento is located within the CVRWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements.

## SUSTAINABLE GROUNDWATER MANAGEMENT ACT OF 2014

The Sustainable Groundwater Management Act (SGMA) of 2014 is a three-bill package that collectively establishes a new structure for managing California's groundwater. A central feature of

the SGMA is the recognition that groundwater management in California is best accomplished locally. The SGMA was signed by Governor Edmund G. Brown Jr. on September 16, 2014, and includes the provisions of SB 1168, AB 1739, and SB 1319. The SGMA builds upon the existing groundwater management provisions established by AB 3030 (1992), SB 1938 (2002), and AB 359 (2011), as well as SBX7 6 (2009) which established the California Statewide Groundwater Elevation Monitoring (CASGEM) Program. The SGMA defines sustainable groundwater management as “the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.” Undesirable results include, but are not limited to, chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, and land subsidence that interferes with surface land uses.

### ANTIDegradation CONSIDERATIONS

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy within the Basin Plan which states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in NPDES and land discharge Waste Discharge Requirements (WDRs) permitting processes.

#### **3.9.2.3 Local Policies and Regulations**

##### DEWATERING

All new groundwater discharges to the combined sewer system or separate sewer system are regulated and monitored by the City's Utilities Department pursuant to Department of Utilities Engineering Services Policy No. 0001, adopted as Resolution No. 92-439 by the Sacramento City Council. Groundwater discharges to the City's sewer system are defined as construction dewatering discharges, foundation or basement dewatering discharges, treated or untreated contaminated groundwater cleanup discharges, and uncontaminated groundwater discharges.

The City requires that any short-term discharge be permitted, or an approved Memorandum of Understanding (MOU) for long-term discharges be established, between the discharger and the City. Short-term limited discharges of seven days duration or less must be approved through the City Department of Utilities by acceptance letter. Long-term discharges of greater duration than seven days must be approved through the City Department of Utilities and the Director of the Department of Utilities through an MOU process. The MOU must specify the type of groundwater

discharge, flow rates, discharge system design, a City-approved contaminant assessment of the proposed groundwater discharge indicating tested levels of constituents, and a City-approved effluent monitoring plan to ensure contaminant levels remain in compliance with State standards or the Sacramento County Regional Sanitation District (RegionalSan) and CVRWQCB-approved levels. All groundwater discharged to the sewer must be granted a RegionalSan discharge permit.

## CITY OF SACRAMENTO MUNICIPAL CODE

### LAND GRADING AND EROSION CONTROL ORDINANCE

The City's Land Grading and Erosion Control Ordinance requires project applicants to prepare erosion, sediment and pollution control plans for both during and after construction of a project, as well as preliminary and final grading plans. The ordinance applies to projects where 350 cubic yards or more of soil is excavated and/or disposed and requires BMPs that must be approved of by the City's Department of Utilities.

### STORMWATER MANAGEMENT AND DISCHARGE CONTROL ORDINANCE

Stormwater and non-storm water discharges are regulated under City Municipal Code, Title 13 Public Services, Chapter 13.16 Stormwater Management and Discharge Control. The purpose of this City ordinance to eliminate discharges to the stormwater conveyance system from spills, dumping, or disposal of materials other than stormwater, and by reducing pollutants in urban stormwater discharges to the maximum extent practicable. The ordinance is intended to assist in the protection and enhancement of the water quality of receiving water bodies and wetlands consistent with the MS4 permit requirements, per the federal CWA as well as the Porter-Cologne Water Quality Control Act. The ordinance regulates sediment and pollutants in construction site stormwater discharges, and mandates development projects to incorporate source and/or treatment controls to minimize construction and post-construction discharge of stormwater pollutants from new development or modifications to existing development. Additionally, specific control measures must be implemented to reduce the risk of non-stormwater discharge and/or pollutant discharge into the City's drainage system or other receiving waters from business-related activities.

### WASTEWATER DISCHARGE

Chapter 13.08 of the Sacramento City Code prohibits the discharge of any substances, materials, waters, or waste if the discharge would violate any sewer use ordinance enacted by RegionalSan. Section 13.08.040 of the Sacramento City Code identifies specific waters, wastes, and substances that may not be discharged to the sewer.

Any discharge into the combined sewer system must have a Sewer Use Questionnaire on file with RegionalSan, which would apply to the Specific Plan project. RegionalSan has adopted a Sewer Use Ordinance that regulates the use of public sewers connected to the Sacramento Regional Wastewater Treatment Plant (SRWTP). The wastewater discharged from the SRWTP to the Sacramento River is regulated under a NPDES permit issued by CVRWQCB. Discharge limitations

are specified in the permit to limit water quality impacts in the Sacramento River. Categorical Pretreatment Standards have also been established for the pretreatment of certain classes of industrial wastes discharged to publicly owned treatment works, such as the SRWTP. The purpose of these standards is to protect the SRWTP and the environment by regulating potentially harmful discharges to the sewer from industrial and commercial business. Impacts associated with RegionalSan sewer and wastewater treatment systems are addressed in Section 4.13, Utilities.

## SACRAMENTO AREA FLOOD CONTROL AGENCY

The Sacramento Area Flood Control Agency (SAFCA) was formed to address the Sacramento area's vulnerability to catastrophic flooding. This vulnerability was exposed during the record flood of 1986 when Folsom Dam exceeded its normal flood control storage capacity and several area levees nearly collapsed under the strain of the storm. In response, the City of Sacramento, the County of Sacramento, the County of Sutter, the American River Flood Control District and Reclamation District 1000 created SAFCA through a Joint Exercise of Powers Agreement to provide the Sacramento region with increased flood protection along the American and Sacramento Rivers. SAFCA's mission is to provide the region with at least a 100-year level of flood protection as quickly as possible while seeking a 200-year or greater level of protection over time. Under the Sacramento Area Flood Control Agency Act of 1990, the California Legislature has given SAFCA broad authority to finance flood control projects and has directed the Agency to carry out its flood control responsibilities in ways that provide optimum protection to the natural environment.

## CITY OF SACRAMENTO 2035 GENERAL PLAN

The City of Sacramento has identified the following goals and policies in the 2035 General Plan:

**GOAL ER 1.1: Water Quality Protection.** Protect local watersheds, water bodies and groundwater resources, including creeks, reservoirs, the Sacramento and American Rivers, and their shorelines.

- **Policy ER 1.1.1: Conservation of Open Space Areas.** The City shall conserve and where feasible create or restore areas that provide important water quality benefits such as riparian corridors, buffer zones, wetlands, and undeveloped open space areas, levees, and drainage canals for the purpose of protecting water resources in the City's watershed, creeks, and the Sacramento and American Rivers.
- **Policy ER 1.1.2: Regional Planning.** The City shall continue to work with local, State, and Federal agencies and private watershed organizations to improve water quality.
- **Policy ER 1.1.3: Stormwater Quality.** The City shall control sources of pollutants and improve and maintain urban runoff water quality through stormwater protection measures consistent with the city's National Pollution Discharge Elimination System (NPDES) Permit.
- **Policy ER 1.17: Construction Site Impacts.** The City shall minimize disturbances of natural water bodies and natural drainage systems caused by development, implement measures to protect areas from erosion and sediment loss, and continue to require construction

contractors to comply with the City's erosion and sediment control ordinance and stormwater management and discharge control ordinance.

## GROUNDWATER SUSTAINABILITY PLANS

SGMA required that agencies involved in the management of groundwater collaborate for Groundwater Management Plans to sustainably manage the groundwater within various groundwater basins. The participating agencies, referred to as Groundwater Sustainability Agencies (GSAs), worked to develop GSPs which set sustainable yields for withdrawals from the basin. Under the GSPs, sustainable yield was defined as the amount of groundwater that can be withdrawn on a long-term average basis without causing undesirable results. While these estimates are provided as a reference herein, as they are intended to assist in achieving sustainability when identifying future projects and management actions, SGMA does not incorporate these estimates directly into the sustainable management criteria; sustainability under the SGMA is demonstrated by avoiding undesirable results of the sustainability indicators.

Sustainability indicators are the effects caused by groundwater conditions occurring throughout the Subbasin that, when significant and unreasonable, become undesirable results (SGAGSA et al., 2021). Undesirable results are defined in the SGMA as one or more of the following effects:

1. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods;
2. Significant and unreasonable reduction of groundwater storage;
3. Significant and unreasonable seawater intrusion;
4. Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;
5. Significant and unreasonable land subsidence that substantially interferes with surface land uses; and
6. Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

SGMA requires that GSAs demonstrate sustainability through the avoidance of undesirable results. The presence of significant and unreasonable effects for any of these indicators, if left uncorrected, could result in State intervention in the management of groundwater in the Subbasin (SGAGSA et al., 2021).

## NORTH AMERICAN SUBBASIN GSP

As required by SGMA, the Sacramento Groundwater Authority GSA along with Reclamation District No. 1001, South Sutter Water District, Sutter County, and West Placer GSAs developed the GSP for the North American Subbasin in December 2021. The GSP describes basin conditions before and after the enactment of SGMA (January 1, 2015) and determines basin management with measurable objectives, interim milestones, and minimum thresholds defined to prevent significant and unreasonable impacts on the sustainability indicators defined by SGMA.

The Project and Management Actions described in the North American Subbasin GSP (2021) provide for successful management of the North American Subbasin. These implementation actions include monitoring, data management, data analysis, coordination and outreach, and other management activities, as shown in **Table 3.9-3**.

**Table 3.9-3: Summary of Implementation Actions for North American Subbasin GSP**

<b>Implementation Actions</b>
<b>Monitoring</b>
Groundwater Elevation Monitoring
<ol style="list-style-type: none"> <li>1. Continue ongoing semi-annual monitoring of the groundwater elevation monitoring network.</li> <li>2. Conduct confirmation water level monitoring as needed.</li> <li>3. Download transducer data semi-annually.</li> </ol>
Groundwater Quality Monitoring
<ol style="list-style-type: none"> <li>1. Download public supply well water quality monitoring data for TDS and Nitrates from the State DDW by December 31 of each year for Minimum Threshold (MT) and Measurable Objectives (MO) evaluation.</li> <li>2. Download data for Arsenic, Hexavalent Chromium, Iron, and Manganese from DDW as it becomes available for individual public supply wells and observe for trends. If future upward trends emerge for these constituents, assess if establishing sustainable management criteria for them would be beneficial.</li> <li>3. Collect water quality samples in the shallow water quality monitoring network in the Fall of odd numbered years (e.g., 2023).</li> </ol>
Subsidence Monitoring
<ol style="list-style-type: none"> <li>1. No current action required unless water level MT exceedances are occurring or if optional DWR InSAR monitoring indicates a potential undesirable result.</li> </ol>
Other Monitoring
<ol style="list-style-type: none"> <li>1. Collect additional monitoring data (e.g., surface water stages) from CDEC on an as-needed basis (e.g., during preparation of Annual Report).</li> </ol>
<b>Data Management</b>
<ol style="list-style-type: none"> <li>1. Upload groundwater elevation data on an ongoing basis to CASGEM (or other applicable State SGMA database) within one month after semi-annual monitoring.</li> <li>2. Upload water quality data from shallow monitoring well network by December 31 of each year that it is collected.</li> <li>3. Update North American Subbasin (NASb) Data Management System with appropriate data by December 31 of each year.</li> </ol>
<b>Data Analysis</b>
Sustainability Indicators

<b>Implementation Actions</b>
<ol style="list-style-type: none"> <li>1. Review all representative groundwater levels in comparison to MOs and MTs by December 31 each year for potential emergence of undesirable results.</li> <li>2. Calculate the public water supply wells TDS and N rolling averages to determine if the Subbasin in meeting MOs and MTs by January 31 each year.</li> <li>3. Review shallow monitoring network TDS and N data to determine if the Subbasin in meeting MOs and MTs by January 31 of each year following its collection.</li> </ol>
<b>Annual Report</b>
<ol style="list-style-type: none"> <li>1. Complete the recurring Annual Report for review by GSAs by February 28 each year and submit to DWR by April 1 each year.</li> </ol>
<b>CoSANA Groundwater Model</b>
<ol style="list-style-type: none"> <li>1. In 2025, a comprehensive assessment and update of the CoSANA model will begin. This will be coordinated with the South American and Cosumnes subbasins. Update to the model will include the use of the most updated urban water supplier demand projections, the latest climate change projections (using multiple future projection scenarios), consideration of an extreme scenario, consideration of the model recommendations in Section 6 of the CoSANA model report included in Appendix P of the GSP.</li> </ol>
<b>Coordination and Outreach</b>
<ol style="list-style-type: none"> <li>1. Continue quarterly meetings of the NASb GSAs.</li> <li>2. Hold at least one public meeting each year in which basin conditions will be presented and upcoming year activities will be described. The meeting will be scheduled when the Annual Report has been completed each year.</li> <li>3. Meet with each adjacent subbasin at least annually. The meeting will be scheduled as the Annual Report is being prepared, so that any observations about potential concerns near common boundaries can be discussed.</li> <li>4. Meet with County and City land use planning staff of respective counties once each year to share the results of the Annual Report and discuss any upcoming anticipated changes to land use designations or General Plans. The meetings will be scheduled shortly after the Annual Report is submitted.</li> <li>5. Continue quarterly meetings of the Regional Contamination Issues Committee to identify and report on potential emerging issues of contamination or constituents of concern. The committee is facilitated by SGA staff and includes State and Federal regulatory agencies, local water agencies, responsible parties, and members of the public.</li> </ol>
<b>Other Management Activities</b>
<ol style="list-style-type: none"> <li>1. Fill the data gaps noted in the monitoring well network by December 31, 2024.</li> <li>2. Track implementation of urban area conjunctive use program as part of Annual Report preparation. Identify if there are barriers to its planned expansion.</li> <li>3. Work with the Regional Water Authority in its development of the Sacramento Regional Water Bank to ensure that it is consistent with achieving the sustainability goal of the NASb.</li> <li>4. Begin technical work on well construction practices (e.g., depth and spacing) to protect the most sensitive beneficial uses and users of groundwater in the NASb. Work will commence in early 2022 and be completed by the end of 2023. This will require a cooperative effort with local permitting agencies.</li> <li>5. Commence shallow/domestic well analysis in early 2022 and conclude by early 2024.</li> <li>6. Commence GDE assessment management action in early 2022 and conclude major assessment by early 2024. Continue annual monitoring of GDE health.</li> <li>7. Track progress on supplemental projects on an annual basis. Update progress and any information on newly proposed supplemental projects in the Annual Report.</li> </ol>

Source: North American Subbasin GSP (2021)

Pursuant to SGMA, the North American Subbasin GSP sets the following goal:

- Manage groundwater resources sustainably for beneficial uses and users to support the lasting health of the Subbasin’s community, economy, and environment.

This goal will be achieved through:

- The monitoring and management of established Sustainable Management Criteria (SMC);
- Continued expansion of conjunctive management of groundwater and surface water;
- Proactively working with local well permitting and land use planning agencies on effective groundwater policies and practices;
- Continued GSA coordination and stakeholder engagement; and
- Continued improvement of the understanding of the Subbasin.

Undesirable results, minimum thresholds and measurable objectives were developed for five of the six SGMA sustainability indicators<sup>1</sup>: chronic lowering of groundwater levels, reduction of storage, land subsidence, degradation of water quality, and surface water depletion. The established SMC under the North American Subbasin GSP, including the minimum thresholds, measurable objectives, and interim milestones, for groundwater levels in the Project vicinity are presented in **Table 3.9-4**.

**Table 3.9-4: Minimum Thresholds, Measurable Objectives, and Interim Milestones for Groundwater Levels in North American Subbasin in the Project Vicinity**

Monitoring Site Number	Monitoring Site Local Name	Minimum Threshold (ft msl)	Measurable Objective (ft msl)	Interim Milestone Year 5 (ft msl)	Interim Milestone Year 10 (ft msl)	Interim Milestone Year 15 (ft msl)	Interim Milestone Year 20 (ft msl)
3	SGA_MW04	-5	-1	3	1	-1	-1
11	Bannon Creek Park	-5	-2	1	0	-2	-2
13	Chuckwagon Park	-15	-13	-8	-10	-12	-13
22	AB-4 shallow	-1	4	8	6	5	4
24	SGA_MW02	-27	-23	-17	-19	-22	-23
27	AB-3 shallow	-4	-1	8	4	0	-1
98	URS71000-700+00C	7	10	10	10	10	10

<sup>1</sup> The sixth SGMA sustainability indicator, seawater intrusion, does not apply to the North American and South American subbasins.

## SOUTH AMERICAN SUBBASIN GSP

As required by SGMA, the Sacramento Central Groundwater Authority along with Sacramento County GSA–South American Subbasin, Omochumne–Hartnell Water District, Sacramento Central Groundwater Authority, Northern Delta, Reclamation District No. 551, and Sloughhouse Resource Conservation District developed the GSP for the South American Subbasin in October 2021. The GSP describes basin conditions before and after the enactment of SGMA (January 1, 2015) and determines basin management with measurable objectives, interim milestones, and minimum thresholds defined to prevent significant and unreasonable impacts on the sustainability indicators defined by SGMA.

The Project and Management Actions described in the South American Subbasin GSP (2021) will improve groundwater conditions in the subbasin and enable the continued and effective use of groundwater with sufficient flexibility to ensure a sustainable groundwater system in the future. These projects include recycled water use, winter recharge in years with adequate peak stream flows, and regional conjunctive use projections; management actions (described in **Table 3.9-5**) include well protection actions, GSA coordination activities, and information gathering that will benefit all uses and users in the South American Subbasin.

**Table 3.9-5: Management Actions for South American Subbasin**

Management Action	Description
Shallow/Vulnerable Well Protection Program	The purpose of the program would be to provide relief to users of shallow wells in the South American Subbasin impacted by declines in groundwater levels in the vicinity of their wells due to groundwater management activities associated with the GSP. Based on best available information, an analysis has been performed which indicates that the incidence of such impacts is projected to be low over the GSP planning horizon. However, uncertainty in measured and modeled groundwater elevations, the number of shallow/vulnerable wells in the South American Subbasin, well completion data, and age of active wells requires additional coordination, monitoring, and data collection to ensure ongoing protection of shallow and vulnerable wells. The creation of a shallow well protection program is intended to address the cases where such impacts may occur.
Well Permit Coordination	The GSAs will work with EMD and the Sacramento County Board of Supervisors to modify well construction ordinances or take other measures to establish: <ul style="list-style-type: none"> <li>• Minimum screen depth requirements to limit high-capacity wells from impacting the shallow zone of the South American Subbasin aquifer and users on that shallow zone (i.e., shallow domestic and agricultural wells, groundwater-dependent ecosystems, inter-connected surface waters)</li> <li>• Well spacing requirements for high-capacity wells to limit impacts on existing wells</li> <li>• Consultation/coordination between EMD Wells Program and South American Subbasin GSAs to ensure new wells do not impact the performance or quality of information derived from wells in the GSP Monitoring Network</li> </ul>

Management Action	Description
<p>Coordination Activities</p>	<p>Each of the proposed coordination activities are consistent with effective management of groundwater resources in the South American Subbasin and are also consistent with the requirements of SGMA for GSP development and implementation. The specific activities included in this management action include:</p> <ul style="list-style-type: none"> <li>• Coordination with GSAs on overarching groundwater management issues consistent with the GSP (through a governance structure that is provided as a companion document to this GSP).</li> <li>• Coordination with agencies with local land use authority in the South American Subbasin to ensure that future land use plans consider the information generated through GSP implementation, including monitoring data and specific modeling results. The GSP has been developed using available information from existing land use plans. Identify and evaluate significant changes in those land use plans that may significantly impact the future groundwater conditions in the South American Subbasin. Proactively work with land use agencies to ensure future development is compatible with GSP goals, attainment of SMC and implementation actions by GSAs through information sharing and annual meetings with those agencies.</li> <li>• Coordination with entities sponsoring beneficial projects identified in this GSP to provide support and otherwise facilitate implementation of these projects, including support for grant funding opportunities, as appropriate</li> <li>• Coordination with water supply agencies to support their implementation of water use efficiency measures. For agencies responsible for the development of urban water management plans, it is anticipated that the 2020 versions of those plans will lead to increased water conservation practices. This coordination activity will encourage implementation of the urban demand management scenarios that were modeled with CoSANA. Coordination with RWA, Water Forum, and local agencies regarding regional water supply planning and water resources management.</li> <li>• Coordination with GSAs in adjacent basins, including consideration and/or development of formal agreements to support ongoing information sharing during GSP implementation (e.g., groundwater levels, boundary fluxes, outreach messages). Coordination with the Cosumnes Subbasin to address data gaps along the middle reach of the Cosumnes River to address uncertainties regarding interconnectedness between surface water and groundwater. Coordination with North American Subbasin and Water Forum to ensure Lower American River Flow standards are addressed appropriately, and that the subsurface flow conditions and movement of regional contamination plumes are properly controlled within the context of regional contamination cleanup efforts.</li> <li>• Coordination with Regional Water Authority and other regional partners to support development of a groundwater banking and accounting framework to enable effective implementation of future conjunctive use projects and other water resource management actions, consistent with attainment of the sustainability goal in the South American Subbasin. The Sacramento Regional Water Bank is envisioned as an institutional and legal framework for operating a sustainable storage and recovery</li> </ul>

Management Action	Description
	<p>program in the North American Subbasin and South American Subbasin. Participation in the Regional Water Bank will be voluntary, with incentives in place to expand conjunctive use operations. The primary goal will be to manage the subbasins sustainably and to enhance climate change resiliency, while protecting all beneficial uses and users. Fundamental principles of the Regional Water Bank are that water must be stored before it can be recovered, that losses must be taken into account, and that the net effect of its operations are to enhance groundwater conditions in the subbasins, in the form of increasing groundwater levels and storage. Operation of the Regional Water Bank will require monitoring, modeling and mitigation to ensure the protection of all users and beneficial uses. Planning for the Regional Water Bank, led by the RWA, is projected to proceed over the next several years, with active participation by the GSAs and other entities in the North American Subbasin and South American Subbasin.</p> <ul style="list-style-type: none"> <li>• Coordination with Regional Water Authority and other regional partners in the development of a refined climate change assessment for use in the 5-year update of the South American Subbasin GSP.</li> </ul>
Address Data Gaps	<p>Collect information to fill data gaps that are identified in the GSP, including:</p> <ul style="list-style-type: none"> <li>• Collection of well depth and screened interval information for specific wells in the Monitoring Network.</li> <li>• Collection of groundwater and surface water information in the stretch of the Cosumnes River between Deer Creek and Twin Cities Road where the interconnectedness of surface and groundwater is uncertain.</li> <li>• Analysis of water quality samples collected by shallow well owners under the Shallow Well Protection Program Voluntary Monitoring Network. The number of samples and the water quality constituents to be analyzed will be determined by the GSAs in coordination with the Shallow Wells Advisory Group.</li> </ul>

Pursuant to SGMA the South American Subbasin GSP (2021) states the following goal:

The Sustainability Goal of the Basin is to protect and ensure the long-term viability of groundwater resources for domestic, urban, agricultural, industrial, and environmental beneficial users of groundwater. The Sustainability Goal will be achieved by rigorous assessment of potential impacts to these beneficial users, and scientifically-informed management that avoids significant and unreasonable impacts to beneficial uses and users of groundwater.

The sustainability goal will be achieved through:

- SMC rigorously tested on data and modeling of historical and projected groundwater use, analyzed specifically with respect to the most sensitive groundwater users (vulnerable wells, GDEs, and ISW and designed to avoid significant and unreasonable impacts to these users;
- shared use of a regional integrated surface and groundwater model that spans the Basin and neighboring basins to the north and south (North American and Cosumnes basins), thus

accounting for inter-basin flows, regional conjunctive use, and projected water use in each basin;

- improved monitoring and scientific studies across the Basin to refine models and address data gaps; and
- substantial inter-basin and inter-agency coordination on conjunctive use projects and management actions already underway that are estimated to increase net basin storage over the implementation period and that will support sustainable pumping, bolster well reliability, improve GDE water access, and maintain critical surface water flows.

The established SMC for the South American Subbasin GSP, including the minimum thresholds, measurable objectives, and interim milestones for groundwater levels in the Project vicinity are presented in **Table 3.9-6**.

**Table 3.9-6: Minimum Thresholds, Interim Milestones, and Measurable Objectives for Groundwater Levels in the South American Subbasin in the Project Vicinity**

Monitoring Site	Minimum Threshold (ft msl)	Measurable Objective (ft msl)	Interim Milestone 2027 (ft msl)	Interim Milestone 2032 (ft msl)	Interim Milestone 2037 (ft msl)
RMP_14	-18	-14	-16	-16	-15
RMP_19	-23	-17	-21	-20	-18
RMP_24(a)	-12	-7	-10	-9	-8
RMP_27	-50	-34	-45	-41	-38
RMP_29	-5	1	-3	-1	0
RMP_30(a)	-41	-29	-37	-34	-31
RMP_33(a)	-5	-1	-3	-3	-2
RMP_34(a)	-6	-1	-4	-3	-2
RMP_35(a)	-8	-4	-6	-5	-5
RMP_37(a)	1	5	3	4	5

(a) These RMPs are in critical monitoring locations, but data is only available after 2018, thus data gaps cause MTs and MOs to be set close to or at present day levels. MTs, MOs, and interim milestones (IMs) for these points are based on the best available information at these monitoring locations but are expected to change in the GSP update as more information becomes available. Moreover, most of these sites are 15-minute interval stations that will provide valuable insight into stream-aquifer interactions.

### 3.9.3 IMPACT ANALYSIS

#### 3.9.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to hydrology and water quality. A review of federal, state, and local regulations, policies, and plans associated with hydrology and water quality was conducted to evaluate any potential Project conflicts.

## SURFACE WATER

Surface water impacts are assessed based on the Project's level of direct and indirect physical impact on surface water in the vicinity, including drainage flow and water quality.

## GROUNDWATER

A groundwater model built off the CoSANA modeling effort for the North American and South American GSPs was used to evaluate the existing conditions baseline, no project conditions, and the proposed Project implementation. The CoSANA model is an integrated water resources model of the Consumnes, South American, and North American Groundwater Subbasins developed to integrate groundwater and surface water simulation and to assist with water management activities in the Sacramento region. The CoSANA model was developed and used in support of the GSPs for these three subbasins. The EIR modeling scenarios analyzed using the CoSANA are briefly described in **Table 3.9-7**.

**Table 3.9-7: Groundwater Modeling Scenarios for EIR**

Scenario Number	Scenario Name	Definition	Proposed Approach and Modifications
1	Existing Conditions Baseline	<ul style="list-style-type: none"> <li>Based on the City's existing demand, groundwater, and surface water operations</li> </ul>	<ul style="list-style-type: none"> <li>Modifications to the GSP Current Conditions Baseline (CCBL) to allow approximately 20,000 AFY pumping in the North American Subbasin</li> </ul>
2	Preferred Project	<ul style="list-style-type: none"> <li>City's 2040 projections (land use, demands and supply)</li> <li>Based on the City's GWMP (replace all active and inactive wells, some of which change basins)</li> </ul>	<ul style="list-style-type: none"> <li>Based on the GSP Projected Conditions Baseline (PCBL) that includes the Maximum Groundwater Use Project as specified in the City's 2017 GWMP</li> <li>Incorporates the Project facilities ramping up over time with the Project well replacement program</li> </ul>
3	No Project Scenario	<ul style="list-style-type: none"> <li>Same as Scenario 2 without the Project</li> </ul>	<ul style="list-style-type: none"> <li>Modifications to the GSP PCBL to incorporate the City's existing pumping and surface water operations</li> </ul>

The modeling approach used for the EIR is consistent with both GSPs. All three scenarios presented in **Table 3.9-7** simulate a 50-year hydrology for water years 1970 through 2019, which represents reasonably long-term conditions. The hydrologic period and the data used for the land use, cropping patterns, agricultural demands and supplies, urban demand and supplies for other entities in the modeling area are all identical to the modeling scenarios developed under the GSP efforts. While the Preferred Project scenario is based on hydrology from 1970 to 2019, the modeling

approach used for the EIR considers climate change as part of the overall project evaluation. In this analysis, results of the EIR scenarios are compared against the GSP Conjunctive Use with Climate Change (GSP CU\_CC) scenario that was used in the minimum threshold established at the monitoring locations under each GSP.

### EXISTING CONDITIONS SCENARIO

Existing Conditions Baseline (ECBL) Scenario is built off the GSP Current Conditions Baseline (CCBL) and represents the existing land use and water use conditions for the City's service area and the purveyors in the region. The City's pumping in the North American Subbasin is approximately 20,000 AFY on an average annual basis under this scenario, compared to 14,300 AFY pumping that was assumed in the GSP CCBL at the time of the GSP development. As described earlier, the modification to the North American Subbasin pumping was incorporated into the EIR modeling analysis to reflect the City's current pumping in this subbasin. With respect to the South American Subbasin, the EIR and GSP modeling analysis are identical.

### PREFERRED PROJECT SCENARIO

The Preferred Project Scenario is built off the GSP Projected Conditions Baseline (PCBL) and represents the proposed Project based on the City's 2040 future projections for land use, water demand and supply. This scenario is based on the Maximum Groundwater Use Scenario as presented in the City's 2017 GWMP. A minor modification from the PCBL includes the timeline of the Project facilities ramping up to reflect pumping shifting from the North American Subbasin to the South American Subbasin consistent with the well replacement schedule. This minor modification results in slightly increased pumping (only 800 AFY) in the North American Subbasin and decreased pumping in the South American Subbasin by the same amount compared to the GSP PCBL. This reflects some of the existing wells pumping in the North American Subbasin in the early simulation years until they are replaced in the South American Subbasin.

### NO PROJECT SCENARIO

No Project Scenario represents the future projected conditions for land use, water demand and supply without the City's proposed Project. Therefore, under the No Project Scenario, the City's groundwater extraction would be the same as in the Existing Conditions Baseline.

### GROUNDWATER IMPACT ANALYSIS

The three scenarios presented in **Table 3.9-7** are evaluated for the EIR analysis and the Preferred Project Scenario model results are compared relative the Existing Conditions Baseline and No Project scenarios to evaluate the potential Project impact on groundwater resources. The Project impacts are evaluated within the context of the GSP and the Preferred Project results are also compared against the GSP PCBL. The Project assessment is also conducted in the context of the GSP SMC in each subbasin to identify if the Project would result in undesirable conditions based on the SMC established by the GSP.

Specifically, the results of the groundwater modeling scenarios are analyzed based on the following criteria:

- Annual average groundwater budget summary tables for the Preferred Project relative to the GSP PCBL in each subbasin
- Annual groundwater storage changes for the Preferred Project relative to the ECBL, No Project, and the GSP PCBL over the entire simulation period
- Average groundwater levels by water year types (Dry, Normal, and Wet years) compared to the SMC as set by the GSP for each respective subbasin at the monitoring locations in the vicinity of the City
- Stream flows at the Sacramento and American Rivers under the ECBL, No Project and Preferred Project scenarios
- Streamflow seepage volumes compared to groundwater pumping and surface water diversions for the Preferred Project relative to the No Project
- Assessment of undesirable results per the GSP SMC in each subbasin at the GSP monitoring well sites established under each GSP

The modeling results under the ECBL, No Project, and Preferred Project scenarios are analyzed in the context of the GSP SMC to assess the undesirable conditions. All of the 41 representative monitoring well sites in the North American Subbasin and 45 representative monitoring points for the South American Subbasin are considered in the analysis and the Project impacts are considered significant if the following conditions would occur:

- *20 percent or more of all North American Subbasin representative monitoring sites have minimum thresholds exceedances for two (2) consecutive Fall measurements (8 out of 41 wells)*
- *More than 25 percent of representative monitoring well in the South American Subbasin fall below the minimum threshold for three (3) consecutive years (12 out of 45 wells)*

Consistent with the undesirable results in the SMC of each GSP, exceedances of minimum thresholds under the Preferred Project are used as an indication of significant and undesirable results. Further details on the groundwater modeling analysis, including the approach, data sources, and results, can be found in Appendix E.

### **3.9.3.2 Thresholds of Significance**

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018, an impact on aesthetics would be considered significant if the project would:

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

- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin, based on standards set within the applicable GSP.
- 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 a substantial erosion or siltation on or off site;
  - Substantially increase the rate or amount of surface run-off in a manner that would result in flooding on or off site;
  - Create or contribute run-off water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted run-off; or
  - Impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation.
- Conflict with or obstruct implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan.

### **3.9.3.3 Criteria Requiring No Further Evaluation**

All criteria require further evaluation.

### **3.9.3.4 Impacts and Mitigation Measures**

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**Impact HYD-1      Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.**

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#### IMPACT HYD-1 ANALYSIS

##### CONSTRUCTION IMPACTS

Each of the proposed Project sites is estimated to include a construction area of over one acre, and therefore the Project would be required to obtain coverage and comply with the NPDES Stormwater Construction General Permit during construction. Additionally, areas within the public rights-of-way would also be disturbed during construction through the installation of laterals in order to connect each of the proposed wells to the potable water distribution system and sanitary sewer system. In accordance with the Construction General Permit, the City would be required to prepare a SWPPP, which would identify BMPs to control sediment and other construction-related pollutants in stormwater discharges. BMPs are discussed in *Section 2.6 Environmental Commitments*. Contractors would be required to comply with the Construction General Permit

throughout construction. Construction dewatering and well test water would either be discharged to land in accordance with CVRWQCB Waste Discharge Requirements for construction dewatering; or discharged to the local storm drain system per SAFCA requirements; or discharged to the City of Sacramento sanitary sewer system in accordance with RegionalSan requirements. Compliance with these permits, including the implementation of BMPs would ensure the project would not violate water quality standards or waste discharge requirements, nor significantly degrade surface water quality. Thus, construction of the proposed Project would have a less than significant impact on surface water quality.

Well drilling, including any needed exploratory drilling, may expose groundwater to minimal traces of soil from the drill itself. Soil from drilling would be collected above ground and disposed of in compliance with BMPs, SWPPP, and Sacramento County requirements. Exposure of chemicals from well drilling are minimal and would not significantly degrade groundwater quality. Existing wells to be destroyed would be abandoned in accordance with applicable standards, which would ensure that abandoned wells do not provide a conduit for contamination that would affect groundwater quality.

### OPERATION IMPACTS

Operation of the proposed Project would consist of extracting groundwater from up to 20 wells in the North American Subbasin and up to 18 wells in the South American Subbasin. The extracted groundwater would be treated at each well site and conveyed for distribution in the City's potable water system. The proposed well sites are located away from any known groundwater contamination plumes and extraction of groundwater from the proposed well sites is not anticipated to result in the migration of contaminants. No adverse impacts on groundwater quality would be expected.

In accordance with City Municipal Code, Title 13 Public Services, Chapter 13.16 Stormwater Management and Discharge Control, BMPs would be used during operation and maintenance of the proposed Project to ensure minimal erosion and chemical exposures would occur that could lead to degraded surface water quality through runoff. Therefore, operation of the proposed Project would have less than a significant impact on surface water quality.

### IMPACT HYD-1 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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**Impact HYD-2      Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.**

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## IMPACT HYD-2 ANALYSIS

CONSTRUCTION IMPACTS

The initial well drilling to gather groundwater samples would result in a negligible amount of groundwater withdrawal and would not interfere with groundwater recharge or impede with sustainable groundwater management. Therefore, initial well drilling would have a less than significant impact on decreasing groundwater supplies or interfering with groundwater recharge.

The destruction of wells would ensure existing wells that need to be replaced are abandoned properly and would not interfere with groundwater recharge or sustainable groundwater management of the basin. Thus, destruction of wells would not have an impact on decreasing groundwater supplies or interfering with groundwater recharge.

Construction of well sites would result in a slight increase in impervious surface area for some sites that are not already paved; however overall construction of well sites and laterals would have negligible effects on groundwater recharge.

OPERATION IMPACTS

The proposed Project would extract groundwater from up to 20 wells in the North American Subbasin and from up to 18 wells in the South American Subbasin for municipal use within the City of Sacramento, which is a designated beneficial use of groundwater as defined by the CVRWQCB's Water Quality Control Plan (also known as the Basin Plan) (CVRWQCB, 2018). SGMA requires that all designated medium- and high-priority groundwater basins be managed in a sustainable manner within 20 years of GSP adoption.

For this analysis, the City's groundwater extraction from each subbasin, as simulated in the groundwater model, would vary by water year type consistent with the approach used in each of the GSPs under both the existing conditions baseline and the proposed Project simulation scenarios. Groundwater pumping variations by water year type are also consistent with the approach developed in the City's 2017 GWMP. The existing conditions baseline model scenario, representing the City's existing land use, water demand, and groundwater and surface water operations, was incorporated into each GSP's groundwater modeling analysis effort. For the EIR analysis, groundwater extraction from the North American Subbasin is approximately 20,000 AFY on a long-term average basis to represent the City's pumping that is currently occurring from the North American Subbasin. The City's long-term average pumping from the South American Subbasin under the existing conditions is approximately 4,200 AFY, which is the same as under the GSP modeling analysis.

The City's pumping projections under the proposed Project simulation scenario were incorporated into each GSP analysis; thus, the City's proposed Project pumping is consistent with the GSPs and the Sustainable Management Criteria established in each of the subbasins. Under the proposed Project, the City's total groundwater pumping on a long-term annual basis would be approximately 38,700 AFY, including 19,000 AFY from the North American Subbasin and 19,700 AFY from the South American Subbasin. Considering water year variations, the City's groundwater extraction from the North American Subbasin would range from 11,500 AFY during wet years to approximately 38,200 AF during the driest years. Groundwater pumping in the South American Subbasin would also vary by water year type, ranging from 12,700 AFY during wet years to up to 43,000 AFY during the driest years. The City's total pumping would be approximately 24,300 AFY during wet years and up to 81,300 AFY during the driest years (see Appendix E, Tables 4, 5, and 6).

In comparison to existing conditions, the City's groundwater extraction with the proposed Project is anticipated to decrease in the North American Subbasin with pumping shifting to the South American Subbasin. In the South American Subbasin, groundwater extraction by the City would increase by approximately 11,000 AFY during wet years to as much as 31,000 AFY during the driest years, compared to existing conditions. Further details about the City's groundwater extraction under the existing and projected conditions with and without the proposed Project are described in Appendix E.

As described in the *Methodology Section* (Section 3.9.3.1), the proposed Project is included within the water budgets contained in both the North American and South American Subbasin GSPs under the GSP PCBL scenario. The proposed Project and the GSP PCBL scenarios represent similar conditions. Therefore, the proposed Project would not be expected to impede either subbasin from reaching and maintaining sustainable conditions as required under SGMA. The modeling analyses further demonstrate that the Project is not anticipated to cause undesirable results based on the SMC contained in the GSPs, as briefly explained below:

- The modeling analyses for the proposed Project indicate less than significant differences in groundwater elevations in the GSP PCBL simulation with respect to the annual average groundwater budget conditions (see Appendix E, Tables 7 and 8).
- With respect to potential impacts to streams (ISWs) the Project is expected to provide a net positive benefit to streams as the volume of surface water that is not diverted under the Project is significantly greater than the additional stream seepage to the groundwater system under the proposed Project (see Appendix E, Figure 21).
- Modeling analyses indicate that the average groundwater levels under the proposed Project are above the minimum thresholds set by the GSP in each subbasin based on the results at the GSP representative monitoring well sites in the vicinity of the City (see Appendix E, Figures 13 and 14). Although the GSP representative monitoring wells outside of the City's potential influence area are not anticipated to be affected by the Project implementation and are anticipated to remain as projected in the GSP analysis, they are included in the assessment of the undesirable conditions (see Appendix E, Table 9).

- Based on groundwater levels projected by the modeling analyses, the proposed Project is not expected to result in undesirable results per the GSP SMC for groundwater elevations established at all GSP representative monitoring well sites in each subbasin (see Appendix E, Table 9).

Once the Project is operational, the City would implement groundwater pumping operations to comply with the North American Subbasin GSP and the South American Subbasin GSP. Also, the City (and other entities operating under the GSPs) would be required to implement projects and/or management actions established in the GSPs (see **Table 3.9-3** and **Table 3.9-5**), which include annual monitoring and reporting of the basin conditions, to ensure long term basin sustainability. Thus, operation of the proposed Project would have a less than significant impact. Further details on the impact analysis of the groundwater modeling scenarios can be found in Appendix E.

### IMPACT HYD-2 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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**Impact HYD-3**      **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 a substantial erosion or siltation on or off site, b) Substantially increase the rate or amount of surface run-off in a manner that would result in flooding on or off site, c) Create or contribute run-off water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted run-off, or d) Impede or redirect flood flows.**

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### IMPACT HYD-3 ANALYSIS

#### CONSTRUCTION IMPACTS

All proposed Project sites are currently sited on parcels covered by bare dirt; grass, trees, or other landscaping; or paved with asphalt or cement. The water distribution system and sanitary sewer pipeline connections would be constructed in existing roadways and would not increase total impervious surface area. Project construction may result in disturbance or exposure of soil that could be subjected to erosion and sedimentation during a rain event. However, implementation of the BMPs as required by the NPDES Stormwater Construction General Permit and SWPPP would limit erosion and sedimentation. Construction staging would attempt to use paved areas as much as possible to avoid disturbances to areas with bare dirt, grass, trees, or other landscaping to avoid

additional runoff. The proposed wells would replace existing pervious services with pavement and control buildings that would lead to slightly increased surface runoff from sites. The impervious extraction well footprints would be minimal and would have a negligible effect on surface runoff. Therefore, construction of the proposed Project would have a less than significant impact.

Destruction of existing wells may result in disturbance or exposure of soil that could be subjected to erosion and sedimentation during a rain event. Implementation of the BMPs as required by the NPDES Stormwater Construction General Permit and SWPPP would limit erosion and sedimentation. Construction staging would attempt to use paved areas as much as possible to avoid disturbances to areas with bare dirt, grass, trees, or other landscaping to avoid additional runoff. Once destruction is complete there may be less surfaces with pavement as all above-ground facilities, except for fencing, would be removed if the location is not expected to have a replacement well installed. Therefore, destruction of existing wells would have a less than significant impact.

### OPERATION IMPACTS

Project facilities would have relatively minor above ground surface profiles that mostly consist of a 70 by 30-foot or 50 by 20-foot control building that is sited to blend in with existing buildings or located as to not interfere with current land uses. The proposed well sites would be entirely unoccupied other than occasional short-term visits by City well maintenance staff. As a result, the proposed Project facilities would not impede or redirect flood flows. The Project would not cause substantial erosion, substantially increase surface runoff, generate runoff in excess of the existing storm drainage systems, be a source of polluted runoff, or impede or redirect flood flows. Thus, operation of the proposed Project would have a less than significant impact.

### IMPACT HYD-3 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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### **Impact HYD-4      In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation.**

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#### IMPACT HYD-4 ANALYSIS

The City is not within an area subject to tsunami or seiche. Therefore, no impacts related to tsunami or seiche are expected to occur within the Project area.

As mentioned in *Section 3.9.1.3 Flood Hazards*, the entirety of the City of Sacramento falls within the 100-year to 500-year flood zone and a majority of the City also lies within the 200-year floodplain. All flood control facilities are designed, constructed, and maintained according to established

standards for safety by regional, state, and/or federal agencies. The City cooperates with Sacramento County for emergency preparedness planning and has adopted the Sacramento County Local Hazard Mitigation Plan. Due to extensive flood control infrastructure and planning by the City and County, it is assumed that flood hazard and risk of inundation of the Project sites would be low. Risk of pollutant release in the event of heavy rains or flooding is considered to be low, as groundwater is assumed to meet all drinking water standards with only chlorine and fluoride treatment required at each well site. Any site that may require additional drinking water treatments would have additional treatment facilities installed on site which would limit the risk of pollutant release. Chemical quantities stored at each Project site would be safely contained to prevent release (see discussion in *Section 3.8 Hazards and Hazardous Materials*) and are not considered to pose a health hazard in the event of inundation. Therefore, the proposed Project would have a less than significant impact for the release of pollutants due to inundation.

### IMPACT HYD-4 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

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### **Impact HYD-5      Conflict with or obstruct implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan.**

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### IMPACT HYD-5 ANALYSIS

#### CONSTRUCTION IMPACTS

The CVRWQCB Basin Plan sets water quality standards for surface water and groundwater within the CVRWQCB region. Water quality standards in the Basin Plan are identified to reduce pollutant discharge and ensure that water bodies are of sufficient quality to meet their designated beneficial uses. The proposed Project would not conflict with the water quality standards outlined in the Basin Plan or worsen water quality conditions in any 303(d)-listed water body. Pollutant discharge during construction would be avoided via compliance with the Construction General Permit and SWPPP and NPDES permits for construction dewatering and well test water discharges. Therefore, construction of the proposed Project would have a less than significant impact.

#### OPERATION IMPACTS

Once operational, the Project would extract groundwater, which would be conveyed for use in the City's service area or sold to wholesale customers. The Project would not discharge extracted water. The Project would not be a source of pollutants to downstream water bodies. Therefore, the proposed Project would not conflict with the Basin Plan.

The North American and South American Subbasin GSPs established sustainability goals and thresholds for their subbasins, which are described in *Section 3.9.2 Regulatory Framework*. Both subbasins have established minimum thresholds, interim milestones, and measurable objectives for groundwater levels at designated representative monitoring locations. As described earlier under *Impact HYD-2 Analysis*, the modeling performed for the required GSP water budgets, which included the implementation of the proposed Project, indicates groundwater pumping for both subbasins is in compliance with sustainable goals of each subbasin.

Results from the EIR groundwater model, discussed in further detail in Appendix E, demonstrate that the proposed Project is expected to comply with the sustainability goals of the North American and South American Subbasins GSPs and is not expected to result in undesirable conditions with respect to the minimum thresholds established in each GSP.

Once the Project is operational, the City, along with other GSAs implementing the GSPs, would be responsible for reaching and maintaining sustainable conditions of their portion of the subbasins, in compliance with the sustainability goals and Sustainable Management Criteria as set forth in the North American and South American Subbasin GSPs. The City, in coordination with the other GSAs, would demonstrate sustainability through the avoidance of undesirable results. In the event that GSP representative monitoring programs indicate minimum threshold exceedances due to groundwater pumping or basin management activities, the City and other GSAs would implement GSP-identified projects and/or management actions (see **Table 3.9-3** and **Table 3.9-5**) necessary to prevent significant and unreasonable undesirable results within their respective GSA jurisdictional boundaries. Therefore, with implementation of the GSPs, operation of the proposed Project would have a less than significant impact.

As discussed in *Section 3.9.1.2 Regional and Local Setting*, the North American and South American Subbasin GSPs describe project and management actions that will be implemented to reach and maintain sustainable groundwater management. Following is a summary of the North American Subbasin GSP implementation actions and assessment of potential Project conflicts:

- **Monitoring:** Groundwater elevation, groundwater quality, subsidence, and additional as-needed monitoring. The proposed Project would not interfere with monitoring and therefore would have no impact.
- **Data Management:** Uploading groundwater elevation and water quality data as well as updating the Data Management System. The proposed Project would not interfere with data management and therefore would have no impact.
- **Data Analysis:** Analyze and review sustainability indicators data, complete Annual Report, and assess and update the CoSANA model. The proposed Project would not interfere with data analysis and therefore would have no impact.
- **Coordination and Outreach:** Meetings with various stakeholders and staff. The proposed Project would not interfere with coordination and outreach and therefore would have no impact.

- **Other Management Activities:** Fill in data gaps, track implementation of conjunctive use program, track and work on the development of projects, and begin well analysis and GDE assessment management action. The proposed Project would not interfere with other management activities and therefore would have no impact.

Therefore, the proposed Project would not conflict or obstruct implementation of the North American Subbasin GSP and would have a less than significant impact.

The South American Subbasin implementation activities are similar to those for the North American Subbasin, but includes implementation of recycled water use projects, winter recharge in years with adequate peak stream flows, and regional conjunctive use projects as well as management actions. Following is a summary of these management actions and assessment of potential Project conflicts:

- **Well Protection:** Provide relief to users of shallow wells. The proposed Project would not interfere with shallow wells because municipal wells are screened much deeper, in the lower aquifer of the South American Subbasin, and therefore would have a less than significant impact.
- **GSA Coordination Activities:** The proposed Project would not interfere with coordination activities and therefore would have no impact.
- **Information Gathering:** Data collection. The proposed Project would not interfere with information gathering and therefore would have no impact.

Therefore, the proposed Project would not conflict or obstruct implementation of the South American Subbasin GSP and would have a less than significant impact.

### IMPACT HYD-5 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

#### **3.9.3.5 Mitigation Measures**

None required.

#### **3.9.3.6 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Master EIR is incorporated by reference and as a City project, the proposed Project adheres to the City's policies. The 2035 General Plan Master EIR found that impacts to surface hydrology resources within the City's planning area are less than significant when the General Plan Policies are implemented. Additionally, the North and South American Subbasin GSPs (2021) found that impacts to groundwater resources within the City's planning area are sustainable and not significant when the Sustainable Management Criteria and project and management actions of the GSPs are implemented. The proposed Project complies with the GSPs

and was adequately addressed in both the 2035 General Plan Master EIR analysis and in the GSPs, and therefore, cumulative effects on groundwater and surface water are less than significant.

### 3.9.4 REFERENCES

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Sacramento Groundwater Authority. 2016. Basin Management Report 2016 Update. Accessed on June 4, 2022. Available online at: <https://www.sgah2o.org/wp-content/uploads/2017/01/pub-bmreport-2015.pdf>

Sacramento Water Forum. 2000. Water Forum Agreement. April.

### *3.9.5 HYDROLOGY AND WATER QUALITY ACRONYMS AND ABBREVIATIONS*

AGR	Agricultural supply
BMPs	Best Management Practices
DWR	California Department of Water Resources
SWRCB	California State Water Resources Control Board
DDW	California State Water Resources Control Board Division of Drinking Water
CASGEM	California Statewide Groundwater Elevation Monitoring
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
CCBL	Code of Federal Regulation (CFR)Current Conditions Baseline
ECBL	Existing Conditions Baseline
FEMA	Federal Emergency Management Agency
FIRMs	Flood Insurance Rate Maps
GMP	Groundwater Management Plan
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
PRO	Industrial process supply
IND	Industrial service supply
IM	Interim Milestone
ISW	Interconnected surface water
MCLs	Maximum Contaminant Levels
MO	Measurable Objective
MT	Minimum Threshold
MUN	Municipal and domestic water supply
NFIP	National Flood Insurance Program
NPDES	National Pollutant Discharge and Elimination System

NASb	North American Subbasin
PFAS	per- and polyfluoroalkyl substances
PCE	Perchloroethylene
PCBs	Polychlorinated biphenyls
PCBL	Projected Conditions Baseline
RWQCB	Regional Water Quality Control Board
SAFCA	Sacramento Area Flood Control Agency
SGA	Sacramento Groundwater Authority
SB	Senate Bill
SWPPP	Stormwater Pollution Prevention Plan
SGMA	Sustainable Groundwater Management Act
SMC	Sustainable Management Criteria
TMDL	Total Maximum Daily Loads
US EPA	United States Environmental Protection Agency

## 3.10 NOISE AND VIBRATION

This section evaluates the environmental setting and impact analysis for noise that could occur as a result of the proposed Project. The section describes the ambient noise environment in the Project area and evaluates noise impacts associated with the Project.

### 3.10.1 ENVIRONMENTAL SETTING

The discussion below defines the terms used in the noise evaluation and describes the noise conditions of the Project area.

#### 3.10.1.1 Definitions and Fundamentals

##### NOISE TERMINOLOGY

##### NOISE

Noise is defined as unwanted sound. The human ear does not judge sound in absolute terms, but instead senses the intensity of differences in sound levels. A decibel is the basic unit of sound level; it denotes a ratio of intensity to a reference sound. Most sounds that humans are capable of hearing have a decibel (dB) range of 0 to 140. A whisper is about 30 dB, conversational speech 60 dB, and 130 dB is the threshold of physical pain (see **Table 3.10-1**). Sound and noise are not the same thing, but sound becomes noise when it is: too loud, unexpected, uncontrollable, occurs unexpectedly, or it has pure tone components.

Noise is any sound that has the potential to annoy or disturb humans or cause an adverse psychological or physiological effect on humans. In the case of the general population, a 5 dBA change is required before most people realize there is a perceptible sound difference.

The noise levels generated during the construction process vary depending on the type of equipment and the nature of the work being performed. It should be recognized that noise impacts can be severe, especially during nighttime activities, and that in many cases simple noise mitigation strategies will not suffice.

Noise generation on most construction projects is the result of equipment operation, with diesel engines being the primary source of noise. Equipment components that generate noise include: the engine, cooling fan, air intake, exhaust, transmission, and tires. In assessing noise generation, construction equipment can be grouped into two categories, stationary and mobile. Equipment noise can also be categorized as being either continuous or impulse in nature. Stationary equipment is considered to operate in one location for one or more days at a time; drill rigs, pumps, generators, compressors, screens, are typical examples of stationary equipment. In addition, pile drivers and pavement breakers are sometimes categorized as stationary equipment. Mobile

equipment includes machinery that performs cyclic processes such as: bulldozers, scrapers, loaders, and haul trucks.

**Table 3.10-1: Representative Environmental Noise Levels**

Common Outdoor Activities	Noise Levels (dBA)	Common Indoor Activities
NA	110	Rock band
Jet flyover at 100 feet	100	NA
Gas lawnmower at 3 feet	90	NA
Diesel truck going 50 miles per hour at 50 feet	80	Food blender at 3 feet, garbage disposal at 3 feet
Noisy urban area during daytime, gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet, normal speech at 3 feet
Commercial area, heavy traffic at 300 feet	60	Dishwasher, clothes dryer
Quiet urban area during daytime	50	Large business office, dishwasher in the room
Quiet urban area during nighttime	40	Theater, large conference room (background)
Quiet suburban area during nighttime	30	Library, bedroom at night, concert hall (background)
Quiet rural area during nighttime	20	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: City of Sacramento, 2015b.

Noise can cause hearing impairment for humans, and may also disrupt everyday activities such as sleep, speech, and activities requiring concentration. Noise can also interfere with the activities of wildlife, especially nesting birds. Noise-sensitive land uses are generally those where excess noise would disrupt how humans and/or wildlife use the land. Land uses such as schools, churches, and hospitals would typically be considered noise sensitive. Noise may be generated by mobile sources (for example, cars, trains, and aircraft) or stationary sources (for example, machinery, airports, and construction sites).

Noise is described using specific terminology, as summarized below. The following explanations are adapted from the City of Sacramento 2035 General Plan, US Department of Transportation Federal Highway Administration (FHWA) Construction Noise Handbook (FHWA, 2006), and the US Department of Transportation Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (FTA, 2018):

- **Ambient Noise.** The distinctive acoustical characteristics of a given area consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
- **Attenuation.** The reduction of noise.
- **A-Weighting.** A method used to account for changes in level sensitivity as a function of frequency. A-weighting de-emphasizes the high and low frequencies and emphasizes

midrange frequencies, in an effort to simulate the relative response of the human ear. A-weighted decibels are expressed as dBA or dB(A).

- **Community Noise Equivalent Level (CNEL).** A 24-hour time-averaged sound exposure level adjusted for average-day sound source operations. The adjustment includes a 5-dB (decibel) penalty for noise occurring between 7:00 p.m. and 10:00 p.m., and a 10-dB penalty for those occurring between 10:00 p.m. and 7:00 a.m., to adjust for the increased impact of nighttime noise on human activities.
- **Day-Night Average Sound Level ( $L_{DN}$ ).**  $L_{DN}$  describes a receiver's cumulative noise exposure from all events over 24 hours. Events between 10:00 p.m. and 7:00 a.m. are increased by 10 dB to account for humans' greater nighttime sensitivity to noise.
- **Decibel (dB).** A unit of measure of sound level. dB are calculated by comparing sound pressure to a sound pressure reference (the threshold of human hearing) and are measured using a logarithmic scale.
- **Equivalent Sound Level ( $L_{EQ}$ ).** The equivalent sound level describes a receiver's cumulative noise exposure from all events over a specified period of time.
- **Line Source.** A source of noise that is created by multiple point sources moving in one direction; for example, a continuous stream of roadway traffic, which radiates sound cylindrically. Sound levels measured from a line source decrease at a rate of 3 dB per doubling of distance.
- **Maximum Sound Level ( $L_{MAX}$ ).** The highest sound level measured during a single noise event (such as a vehicle pass by), in which the sound level changes value as time goes on. The maximum sound level is important in judging the interference with common activities caused by a noise event.
- **Minimum Sound Level ( $L_{MIN}$ ).** The minimum noise level during a measurement period or noise event.
- **Noise Barrier.** A structure, or structure together with other material, that potentially alters the noise at a site.
- **Point Source.** A source that radiates sound spherically. Sound levels measured from a point source decrease at a rate of 6 dB per doubling of distance.

### NOISE ATTENUATION

Noise dissipates with distance and with attenuation features, such as barriers or terrain. Noise that emanates from a point source generally decreases at a rate of 6 dB per doubling of distance for hard sites and 7.5 dBA for soft sites per doubling distance from the reference measurement, while noise that emanates from a line source – a source that is created by multiple point sources moving in one direction; for example, a continuous stream of roadway traffic – decreases at a rate of 3 dB

per doubling of distance (FTA, 2018). Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the change in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. (FTA, 2018)

## VIBRATION TERMINOLOGY

Groundborne vibration may occur when heavy equipment or vehicles create vibrations in the ground, which can then propagate through the ground to buildings, creating a low-frequency sound. Groundborne vibrations can be a source of annoyance to humans due to a “rumbling” effect, and such vibrations may also cause damage to buildings. Groundborne vibration is discussed in terms of these impacts on humans and structures. The annoyance potential of groundborne noise is typically characterized with the A-weighted sound level. Due to its low frequency, groundborne noise sounds louder than airborne noise at the same noise level; therefore, the impact thresholds for groundborne noise are typically lower than those for airborne noise. The following vibration terminology has been adapted from the FTA’s Transit Noise and Vibration Impact Assessment Manual (FTA, 2018):

- **Vibration Decibels (VdB).** The vibration velocity level in decibel scale.
- **Peak Particle Velocity (PPV).** The peak signal value (maximum positive or negative peak) of the vibration signal. PPV is often used in monitoring of construction vibration (such as blasting) because it is related to the stresses that are experienced by buildings and is not used to evaluate human response. PPV is usually expressed in inches/second.
- **Root Mean Square (rms).** The rms is used to describe the smoothed vibration amplitude. The rms amplitude is used to convey the magnitude of the vibration signal felt by the human body, in inches/second. The average is typically calculated over a one-second period. The rms amplitude is always less than the PPV and is always positive.

### **3.10.1.2 Regional and Project Setting**

The City of Sacramento 2035 General Plan Appendix C, provides a detailed Background Report on the noise setting within the City, which is reflective of Project environmental setting conditions. Although there are many noise sources within the City, the primary noise source is vehicular traffic. The City’s 2035 General Plan calculates noise levels (24-hour levels) associated with vehicular traffic at 80 to 85 dBA CNEL for highways and 60-70 dBA CNEL for other roadways (City of Sacramento, 2015a).

Significant noise also occurs from airplane traffic, railroads, light rail, and various stationary sources such as public facility operations. The 2035 General Plan calculates noise levels at various public facilities sites to range from 70.3  $L_{EQ}$  CNEL to 93.1 dBA CNEL with the lower number occurring at

stationary sources like a water treatment plant and the higher number at a rail crossing (City of Sacramento, 2015b). Ambient noise levels at public facilities, however, are better represented by the  $L_{MIN}$  value of 63.9 dBA, which is taken at a distance of 125 feet from the noise generating equipment operating with no noise controls (City of Sacramento, 2015b).

Land uses in Sacramento include a range of residential, commercial, institutional, industrial, recreational, and open space uses with varying ambient noise levels. Open space, recreational, and residential areas are among the quietest land uses with typical noise sources including sounds from outdoor activities such as conversations, music, landscape maintenance equipment (e.g., leaf-blowing and lawnmowing), children playing and other sounds related to residences such as the use of heating and cooling equipment or the use of power tools (see **Table 3.10-1** for noise levels associated with representative activities). Commercial uses typically have noisier ambient levels associated with activities such as operation of rooftop heating and cooling equipment, truck deliveries, customers and pedestrians, and other operational activities. Industrial uses can have fluctuations in ambient noise levels with uses like warehouses and water treatment plants that have very limited or contained noise generation and other uses that require use of heavy equipment as part of normal operations such as shipping and loading, concrete crushing, and recycling (City of Sacramento, 2015b).

## NOISE-SENSITIVE RECEPTORS

Some land uses are more sensitive to noise levels than others due to the types of activities typically associated with the land uses. Sensitive noise receptors typically include residences, schools, childcare centers, hospitals, long-term health care facilities, convalescent centers, and retirement homes. These sensitive land uses, when compared to non-sensitive uses such as commercial and industrial land uses, depend on a low-level noise environment to promote the well-being of their occupants and visitors.

Sensitive receptors in the vicinity of the proposed Project sites include residences, schools, churches, and hospitals. Schools and residences would be the nearest sensitive receptors to proposed sites, with some sites located at school properties, and some wells located near residences – either on vacant parcels near residences, or on utility, school, park, or other properties that are near residences (e.g., next door or across the street).

### 3.10.2 REGULATORY FRAMEWORK

This section describes local laws and regulations that may apply to the project. There are no federal or state noise regulations that apply to the Project.

### 3.10.2.1 Local Policies and Regulations

#### CITY OF SACRAMENTO 2035 GENERAL PLAN

The Environmental Constraints Element of the City of Sacramento 2035 General Plan includes policies that are intended to protect residents, businesses, and visitors from potential noise hazards by establishing exterior and interior noise standards. These policies also require mitigation of construction noise impacts. The City is in the process of updating the 2035 General Plan, and the following 2035 General Plan goals and policies are relevant to the proposed Project and would be replaced by updated General Policies if and when the updated General Plan is released:

**GOAL EC 3.1: Noise Reduction.** Minimize noise impacts on human activity to ensure the health and safety of the community.

- **Policy EC 3.1.1: Exterior Noise Standards.** The City shall require noise mitigation for all development where the projected exterior noise levels exceed those shown in **Table 3.10-2** (EC-1 in the 2035 General Plan), to the extent feasible.
- **Policy EC 3.1.2: Exterior Incremental Noise Standards.** The City shall require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in **Table 3.10-3** (Table EC-2 in the 2035 General Plan) to the extent feasible.

**Table 3.10-2: 2035 General Plan Table EC 1 Exterior Noise Compatibility Standards for Various Land Uses**

Land Use Type	Highest Level of Noise Exposure That Is Regarded as "Normally Acceptable" (L <sub>DN</sub> or CNEL)
Residential – Low Density Single-Family, Duplex, Mobile Homes	60 dBA
Residential – Multi-family	65 dBA
Urban Residential Infill and Mixed-Use Projects	70 dBA
Transient Lodging – Motels, Hotels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office Buildings – Business, Commercial and Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

**Table 3.10-3: 2035 General Plan Table EC 2 Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses (dBA)**

Residences and buildings where people normally sleep		Institutional land uses with primarily daytime and evening uses	
Existing LDN	Allowable Noise Increment	Existing Peak Hour LEQ	Allowable Noise Increment
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

**Policy EC 3.1.5: Vibration.** requires construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby residential and commercial uses based on the current City or FTA criteria. Policy EC 3.1.7 requires an assessment of the damage potential of vibration-induced construction activities, highways, and rail lines in close proximity to historic buildings and archaeological sites and requires all feasible measures be implemented to ensure no damage would occur.

**Policy EC 3.1.10: Construction Noise.** The City shall require development projects subject to discretionary approval to assess potential construction noise impacts on nearby sensitive uses and to minimize impacts on these uses, to the extent feasible.

#### CITY OF SACRAMENTO MUNICIPAL CODE

The City of Sacramento Municipal Code, Chapter 8.68 – Noise Control (referred to as the Noise Control Ordinance), contains the following applicable noise regulations within City limits.

#### EXTERIOR NOISE STANDARDS

The following noise standards shall apply to all agricultural and residential properties: From 7:00 a.m. to 10:00 p.m. the exterior noise standard shall be 55 dBA. From 10:00 p.m. to 7:00 a.m. the exterior noise standard shall be 50 dBA.

It is unlawful for any person at any location to create any noise which causes the noise levels when measured on agricultural or residential property to exceed for the duration of time set forth following the specified exterior noise standards in any one hour by the decibel allowances shown in **Table 3.10-4**.

**Table 3.10-4: 2035 General Plan Exterior Noise Standards for Intrusive Sounds**

Cumulative Duration of the Intrusive Sound	Allowance Decibels
Cumulative period of 30 minutes per hour	0
Cumulative period of 15 minutes per hour	+5
Cumulative period of 5 minutes per hour	+10
Cumulative period of 1 minute per hour	+15
Level not to be exceeded for any time per hour	+20

Each of the noise limits specified in the table above shall be reduced by 5 dBA for impulsive or simple tone noises, or for noises consisting of speech or music.

If the ambient noise level exceeds that permitted by any of the first four noise categories specified in **Table 3.10-4.** above, the allowable noise limit shall be increased in 5 dBA increments in each category to encompass the ambient noise level. If the ambient noise level exceeds the fifth noise level category, the maximum ambient noise level shall be the noise limit for that category.

#### EXEMPTIONS

The following activities shall be exempted from the provisions of the Noise Control Ordinance:

- Activities conducted on parks and public playgrounds, provided such parks and public playgrounds are owned and operated by a public entity.
- Any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work.
- Noise sources due to the erection (including excavation), demolition, alteration or repair of any building or structure between the hours of 7:00 a.m. and 6:00 p.m. on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday; provided, however, that the operation of an internal combustion engine shall not be exempt pursuant to this subsection if such engine is not equipped with suitable exhaust and intake silencers which are in good working order. The director of building inspections may permit work to be done during the hours not exempted by this subsection in the case of urgent necessity and in the interest of public health and welfare for a period not to exceed three days. Application for this exemption may be made in conjunction with the application for the work permit or during progress of the work.
- Noise sources associated with maintenance of street trees and residential area property provided said activities take place between the hours of 7:00 a.m. and 6:00 p.m.

### 3.10.3 IMPACT ANALYSIS

#### 3.10.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the Project would result in significant noise impacts. Existing site conditions based on empirical observations, noise level measurements, and computer modeling conducted for the 2035 General Plan were compared to anticipated site conditions of the Project both during construction activities and after the Project facilities are operational. The analysis focused on the Project's noise generation as compared to the thresholds in Chapter 8.68 of Sacramento's municipal code (the Noise Control Ordinance) and 2035 General Plan. Construction noise and vibration levels were determined using equipment noise and vibration reference levels developed by the Federal Transit Administration (FTA). For construction vibration, this analysis used the City standards for structural damage and the FTA's vibration impact thresholds for annoyance within sensitive buildings, residences, and institutional land uses. In summary, these thresholds are: for damage, in existing and/or planned residential and commercial structures, vibration-peak-particle velocities greater than 0.5 inches per second, in historic buildings and archaeological sites, vibration-peak-particle velocities greater than 0.25 inches per second; for annoyance, 80 vibration velocity level in decibels (VdB) at residences and buildings where people normally sleep and 83 VdB at institutional buildings, both for infrequent events. The FTA also specifies a threshold of 94 VdB (equivalent to 0.2 inches per second peak particle velocity) to prevent structural damage in "nonengineered timber and masonry buildings," which is the dominant building type for residential structures.

Anticipated Project noise levels were compared to the City of Sacramento Noise Control Ordinance and the City of Sacramento General Plan Exterior Noise Standards (see Section 3.10.2.1) for applicable land uses at each Project site (land uses at each site are described in the *Project Description* (Sections 2.4 and 2.5), **Table 2.5-1** and **Table 2.6-1**, and evaluated to determine whether they would exceed significance thresholds listed below (Section 3.10.3.2).

#### 3.10.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines*, a noise impact would be considered significant if the Project would:

- Generate a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards in the City of Sacramento Noise Control Ordinance.
- Generate a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the City's General Plan or Noise Control Ordinance.
- Generate excessive groundborne vibration or groundborne noise levels.
- For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.

### 3.10.3.3 Criteria Requiring No Further Evaluation

The Initial Study determined that the Project would not have significant impacts associated with the following criteria:

- **For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.** Five proposed well sites are located within the vicinity of an airport and would require occasional site visits by City staff for operation, resulting in short-term airport noise exposure. However, the Project would not result in new residences near any airports nor would it create new long-term employment within those areas. Therefore, the Project would not expose residences or workers to excessive aircraft noise. There would be no impact.

### 3.10.3.4 Impact Assessment

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<b>Impact NOI-1</b>	<b>Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.</b>
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#### IMPACT NOI-1 ANALYSIS

##### CONSTRUCTION IMPACTS

As described in the *Environmental Setting* (Section 3.10.1.2), ambient noise levels at the Project sites range from quiet residential neighborhoods with ambient levels around 40 to 50 dBA to more noisy areas along roadways and industrial uses with noise levels around 75 dBA.

Construction, although typically short-term, can be a significant source of noise. Construction is most significant when it takes place near sensitive land uses, occurs during noise-sensitive evening and nighttime hours or when construction takes place over an extended period of time. The proposed Project would have the potential to cause a substantial temporary increase in ambient noise levels during the construction activities occurring near sensitive receptors and taking place during evening and nighttime hours. The following discussion describes the Project's potential temporary construction impacts.

The noise generated during construction would be temporary in nature and would be intermittent at each well site over the course of the Project, as described in the *Chapter 2 Project Description*. Construction of each well would involve noise-generating activities such as excavation, well drilling, and installation of facilities. A description of the construction equipment that would be used for construction can be found in Section 2.5.3. The typical noise levels associated with the construction equipment shown in the *Project Description* are shown in **Table 3.10-5**.

**Table 3.10-5: Typical Construction Equipment Noise Levels**

Equipment	Typical Noise Levels (dBA LMAX, at 50 feet)
Air Compressor	78
Auger Drill Rig	84
Backhoe/Loader	78
Concrete Mixer Truck	79
Concrete Pump Truck	81
Concrete Saw	90
Crane	81
Dozer	82
Drilling Rig Truck	79
Generator	81
Paver	77
Pick-up Trucks	75
Pump	81
Roller	80
Sweeper	82
Utility Truck	74 <sup>1</sup>
Water Truck	84 <sup>1</sup>
Welder	74

Source: FHWA, 2006.

<sup>1</sup> Water truck noise was assumed to be comparable to a tractor. Utility truck noise was assumed to be comparable to a flat-bed truck.

The wells would be constructed in multiple phases. Most construction phases (site preparation, mobilization/demobilization, well testing, well equipping, landscaping, paving, and well demolition) would occur during daytime hours having a relatively minor effect on already elevated ambient noise levels. However, the test and production well drilling would likely require continuous, 24-hour operation of the drill rig and support vehicles in order to prevent borehole collapse, thus requiring nighttime work. Construction equipment associated with nighttime drilling is presented in **Table 3.10-6**. For the Federal Highway Administration's Roadway Construction Noise Model (RCNM) calculation sheets, see Appendix F.

**Table 3.10-6: Typical Construction Equipment and Associated Noise Levels Required for 24-hour Operation during Drilling Phase**

Equipment	Number	Typical Noise Levels (dBA LMAX at 50 feet)	Typical Noise Levels (dBA L <sub>EQ</sub> , at 50 feet)/ % Use
Air Compressor	1	77.7	73.7 / 40%
Auger Drill Rig	1	84.4	77.4 / 20%
Utility Truck	4	74.3	70.3 <sup>1</sup> / 40%
Pump	1	80.9	77.9 / 50%

Equipment	Number	Typical Noise Levels (dBA $L_{MAX}$ at 50 feet)	Typical Noise Levels (dBA $L_{EQ}$ , at 50 feet)/ % Use
Welder	1	74	70 / 40%
Calculated Combined Noise Level		84.4	82.8

Source: FHWA, 2006.

<sup>1</sup> Utility truck noise is assumed to be comparable to a flat-bed truck.

Drilling at an individual well site would last four weeks for test wells and five weeks for production wells, resulting in maximum noise levels of approximately 84 dBA at 50 feet away from the drilling. A comparison of the Project's estimated construction noise generation to the Noise Control Ordinance illustrates that the Project construction, at 84 dBA, would exceed the exterior standard for residential properties. The City Municipal Code (8.68.080 Exemptions) provides an exemption from this standard for temporary construction noise that occurs between 7:00 a.m. and 6:00 p.m., Monday through Saturday and between 9:00 a.m. and 6:00 p.m. on Sunday so long as construction equipment engines are equipped with suitable exhaust and intake silencers which are in good working order. Construction activities that occur outside of the City of Sacramento construction exempt hours (i.e., at night) must comply with Municipal Code Section 8.68.060, as summarized in **Table 3.10-4**, which would allow for a maximum noise level of 75 dBA from 7:00 a.m. to 10:00 p.m., and 70 dBA from 10:00 p.m. to 7:00 a.m..

Construction noise during the well drilling phase was modeled using RCNM. It was assumed that all of the equipment in **Table 3.10-6** would be operating simultaneously (which is a conservative assumption because it is not likely all equipment would operate at once).

Project features are located both on hard sites (e.g., parking lots) and on soft sites (e.g., parks). For the purposes of estimating noise for this analysis, hard site conditions were assumed, with no noise shielding, which provides the least conservative assumption of noise dissipation due to site conditions. **Table 3.10-7** illustrates approximate construction equipment noise dissipation at distances away from a Project site assuming hard site conditions and no noise attenuating features. When multiple pieces of construction equipment are operating at the same time with no noise shielding, the estimated equivalent sound level ( $L_{EQ}$ ), which is a measure of a receiver's cumulative noise exposure over a specified period of time, comparable to the units of the City's exterior noise standard ( $L_{DN}$  or CNEL), is 82.8 dBA.

Sound levels measured from a point source, such as construction at a Project well site, would be expected to decrease at a rate of 6 dB per doubling of distance (FTA, 2018), as shown in **Table 3.10-7**.

**Table 3.10-7 Projected Project Noise Levels (dBA L<sub>MAX</sub>) during 24-hour Drilling Phase at Distance Away from Project Site**

Equipment	Number	50 feet	100 feet	200 feet	300 feet	400 feet
Air Compressor	1	78	72	66	62	60
Auger Drill Rig	1	84	78	72	69	66
Utility Truck <sup>1</sup>	4	74	68	62	59	56
Pump	1	81	75	69	65	63
Welder	1	74	68	62	58	56
Calculated Combined Noise Level		84	78	72	69	66

Source: FHWA, 2006.

<sup>1</sup> Utility truck noise is assumed to be comparable to a flat-bed truck.

While temporary, noise levels associated with nighttime construction of the Project would exceed the City's exterior noise standards. If not appropriately mitigated, this exceedance would constitute a significant impact. As a representation of the greatest noise impacts, construction of Well 32, which is approximately 50-feet from residential receptors, would generate maximum noise impacts. Well 32 would be drilled to a depth of 1,000 feet, requiring 24-hour drilling for up to the full five weeks. The well site has minimal soft site attenuating features, and the ground surface is a mixture of flat paved and unpaved surfaces with no walls or barriers surrounding the site. Under the conditions at Well 32, noise levels would not be reduced to the residential exterior daytime noise standard of 75 dBA until a distance of 200 feet away and would not reach the nighttime noise standard of 70 dBA until a distance of 300 feet away. As a conservative estimate, a potentially significant impact would occur within a distance of 300 feet of the proposed Project sites and **Mitigation Measure NOI-1** and **Mitigation Measure NOI-2** would be required to reduce Project noise generation to below City noise standards.

**Mitigation Measure NOI-1: Noise Barriers** (see Section 3.10.3.5 for full text) was designed to mitigate the exceedance of City noise standards by requiring noise barriers be constructed to enclose nighttime activities and attenuate sound levels by at least 15 dBA. A reduction of 15 dBA would reduce noise levels from 84.4 L<sub>MAX</sub> to 69.4 L<sub>MAX</sub>, which would meet the standards of the City Noise Control Ordinance, thus reducing the potential significant impact to a less than significant level.

Daytime construction activities and construction worker, vendor, and hauling truck trips, would expose receptors at the well sites and along transportation routes to elevated noise levels. These trips would generally occur during daytime hours as defined by 2035 General Plan requirements described in *Section 3.10.2.1 Definitions and Fundamentals*. Project construction would require up to 18 round-trip worker trips per day, up to 12 vendor trips per day, and up to 28 round-trip hauling trips per day that would contribute to daytime noise levels along haul routes and at Project sites. The amount of noise generated would be affected by the vehicle speed, load, road condition, and other factors. Truck trip noise would occur during daytime hours when ambient vehicle noise levels from vehicle traffic are already elevated and are the largest source of noise in the city (City of

Sacramento, 2015b). Due to the proximity of construction activities to residences and other noise-sensitive land uses, impacts from construction noise would be potentially disruptive to daily activities and potentially exceed City exterior noise standards. However, these sources would be temporary exceedances of City standards. Accordingly, the City Municipal Code (8.68.080 Exemptions) exempts temporary construction noise that occurs between 7:00 a.m. and 6:00 p.m., Monday through Saturday and between 9:00 a.m. and 6:00 p.m. on Sunday, as long as construction equipment engines are equipped with suitable exhaust and intake silencers which are in good working order. If construction equipment engines were not equipped with these features, impacts from construction noise could create a significant impact. Therefore, **Mitigation Measure NOI-2**, which requires Construction Noise Reduction Measures such as maintaining equipment exhausts and intakes with silencers, would be required to reduce this potential impact to less than significant levels.

Construction of the Project could result in exceedances of the City's exterior noise standards. These potential exceedances would be mitigated by implementation of **Mitigation Measures NOI-1** and **NOI-2**. Therefore, the proposed Project would have a less than significant impact with mitigation incorporated.

### OPERATION IMPACTS

Operation of the wells would require 24-hour pumping, which would generate noise. The exact well pump and instrumentation model type that would be used in the Project replacement wells is unknown at the time of this analysis, but according to the Federal Highway Administration (FHWA, 2006) pump equipment specifications, the noise from one pump at a distance of 100 feet is approximately 71.9 dBA  $L_{EQ}$ , assuming typical usage rate of 50 percent, which is within the range of "normally acceptable" sound levels for only industrial and some recreational land uses such as golf courses and water parks, per the 2035 General Plan Exterior Noise Compatibility Standards (see **Table 3.10-2**). To provide noise attenuation, large equipment (including the well and potable water booster pumps and emergency generator) may have perimeter fencing and vegetation, which would provide approximately 3 dBA of attenuation (FHWA, 2006) and result in noise levels within the range of "normally acceptable" for urban residential infill, school, and office buildings land uses (see **Table 3.10-2**) at a distance of 100 feet. Some wells may be housed within a concrete masonry unit (CMU) building and a 6-foot-tall CMU wall around well houses, which would provide approximately 10 dBA of attenuation (FHWA, 2006). Such features would lower the operational noise level to within the range of "normally acceptable" for multi-family residential land use (see **Table 3.10-2**) at a distance of 100 feet. Where necessary, wells such as those sited in single-family residential neighborhoods or located less than 100 feet from receptors, would be shielded with CMU buildings and walls, which would create normally acceptable noise levels, as shown in **Table 3.10-10**.

**Table 3.10-8: Projected Operational Noise Levels (dBA L<sub>EQ</sub>)**

Equipment	Number/ Use	50 feet, 0 dBA shield	100 feet, 0 dBA shield	200 feet, 0 dBA shield	50 feet, 10 dBA shield <sup>2</sup>	100 feet, 10 dBA shield <sup>2</sup>	200 feet, 10 dBA shield <sup>2</sup>
Pump operational noise level	1/ 50%	77.9	71.9	65.9	67.9	61.9	55.9
Compatible Land Use(s) at estimated pumps noise level <sup>1</sup>		Normally un- acceptable	Recreation Industrial	Urban Infill Schools Parks Offices Recreation Industrial	Urban Infill Schools Parks Offices Recreation Industrial	Multi- family Hotels Urban Infill Schools Parks Offices Recreation Industrial	All residential Hotels Urban Infill Schools Parks Offices Recreation Industrial

Source: FHWA, 2006.

<sup>1</sup> Land use compatibility summarized in **Table 3.10-2**.

<sup>2</sup> Shielding provided by CMU block wall or CMU building around pump equipment.

With shielding, as well as attenuation due to distance, ambient noise levels in the vicinity of the well sites are not expected to substantially increase as a result of Project operations. Based on the proposed site locations shown in Appendix B, well sites within or near noise-sensitive land uses that could require shielding with a CMU well house and CMU wall or other feature that achieve 10 dBA noise reduction in total are shown in **Table 3.10-40**. Actual shielding requirements for each well site would be determined at the time of engineering design and could include, in some cases, locating the well on-site further away from noise-sensitive land uses, as long as well siting criteria discussed in Section 2.5.1 are met.

**Table 3.10-9: Noise Sensitive Land Uses Adjacent to Wells**

Land Use and Distance <sup>1</sup>	Well Sites with Noise-Sensitive Land Use Nearby
Single family residential, duplexes, and/ or mobile homes within 200 feet	Wells 1, 3, 6, 10, 15, 16, 20, 21, 26, 27, 29, 30, 31, 32
Multi-family residential and/or transient lodging within 100 feet	Wells 19, 39
Urban infill residential, multi-use, schools, libraries, churches, hospitals, nursing homes, playgrounds, parks, offices, recreational, and/or industrial within 50 feet	Wells 2, 4, 5, 8, 9, 17, 22, 23, 33, 36

<sup>1</sup> 2035 General Plan Table EC 1 Exterior Noise Compatibility Standards for Various Land Uses

Ongoing operation and maintenance for the wells would involve monthly inspections. Long-term noise associated with these minor additional vehicle trips would not result in a noticeable increase in permanent ambient noise above existing levels. With the environmental commitments and project design features, operational noise from the proposed facilities would be less than significant.

### IMPACT NOI-1 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measures NOI-1 and NOI-2 (See Section 3.10.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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### **Impact NOI-2      Generate excessive groundborne vibration or groundborne noise levels.**

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### IMPACT NOI-2 ANALYSIS

#### CONSTRUCTION IMPACTS

Construction would not involve high-impact activities, such as piledriving, blasting, or vibratory rolling, that typically generate high levels of groundborne vibration. However, construction activities associated with the Project would have the potential to generate lower levels of groundborne vibration. The Transit Noise and Vibration Impact Assessment Manual (FTA, 2018) provides average source levels for typical construction equipment that may generate groundborne vibrations. Vibration source levels for construction equipment associated with the proposed Project are summarized in **Table 3.10-10**. Groundborne vibrations propagate through the ground and decrease in intensity quickly as they move away from the source. Vibrations with a PPV of

0.2 inches/second or greater have the potential to cause architectural damage to normal dwelling houses (City of Sacramento, 2015a). None of the construction equipment to be used would exceed the PPV threshold of 0.2 inches/second at a distance of 25 feet; therefore, construction equipment used for the Project would not have the potential to damage buildings.

**Table 3.10-10: Vibration Source Levels for Construction Equipment**

Equipment	PPV at 25 feet (inches/second)	Approximate VdB at 25 feet
Air Compressor	N/A	N/A
Auger Drill Rig	0.089 <sup>1</sup>	87 <sup>1</sup>
Backhoe/Loader	N/A	N/A
Concrete Mixer Truck	0.076 <sup>1</sup>	86 <sup>1</sup>
Concrete Pump Truck	0.076 <sup>1</sup>	86 <sup>1</sup>
Concrete Saw	N/A	N/A
Crane	N/A	N/A
Dozer	0.089	87
Drilling Rig Truck	0.089 <sup>1</sup>	87 <sup>1</sup>
Generator	N/A	N/A
Paver	N/A	N/A
Pick-up Trucks	0.076 <sup>1</sup>	86
Pump	N/A	N/A
Roller (static)	0.089 <sup>1</sup>	87 <sup>1</sup>
Sweeper	N/A	N/A
Utility Truck	0.076 <sup>1</sup>	86 <sup>1</sup>
Water Truck	0.076 <sup>1</sup>	86 <sup>1</sup>
Welder	N/A	N/A

Source: FTA, 2018

Most construction equipment is not expected to generate vibration; these are denoted with "N/A."

1. Drill rig PPV was assumed to be comparable to caisson drilling. Pickup trucks, utility trucks, water trucks, and concrete trucks were assumed to be comparable to "loaded trucks" and a static roller was assumed to be comparable to a large bulldozer as listed in the *Transit Noise and Vibration Impact Assessment Manual*.

According to the FTA's Transit Noise and Vibration Impact Assessment Manual, 80 VdB is the threshold for human annoyance from groundborne vibration noise when events are infrequent. Typical VdB levels for construction equipment are summarized in **Table 3.10-10**. The Project would not involve use of high-impact activities, such as piledriving or blasting, that typically generate high levels of groundborne vibration. However, loaded trucks and well drilling rigs would produce levels of vibration noise that exceed the threshold for human annoyance at a distance of 25 feet. Groundborne vibration noise from the most impactful piece of equipment (drilling rig) would attenuate to below 80 VdB at a distance of 43 feet ( $VdB_{\text{distance}} = VdB_{\text{reference}} - 30\log(\text{distance}/25)$ ) (FTA, 2018). Vibration noise from trucks would attenuate to below 80 VdB at a distance of 40 feet.

Sensitive receptors are located at least 50 feet from the noise source. Construction of the Project may generate low levels of vibration and groundborne noise; however, vibration would dissipate before reaching sensitive receptors. Furthermore, no construction equipment used for the Project would have the potential to generate vibration that could damage structures. Thus, vibration impacts would be less than significant.

### OPERATION IMPACTS

Once operational, the proposed wells would not generate groundborne vibration or noise. Vibration and vibration noise from the Project would not be damaging or excessive. Therefore, the impact would be less than significant.

### IMPACT NOI-2 FINDINGS

**Level of Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None required.

### **3.10.3.5 Mitigation Measures**

#### MITIGATION MEASURE NOI-1: NOISE BARRIERS

The City shall require its contractor to install temporary construction noise barriers prior to the start of well construction activities for all activities requiring “nighttime” work outside the hours of 7:00 a.m. to 6:00 p.m. or 9:00 a.m. to 6:00 p.m. on Sundays. These barriers shall follow the Federal Highways Administration Construction Noise Handbook guidance and block the line of sight between the equipment and the noise-sensitive receptor(s). The barriers shall provide enough noise attenuation that noise levels at nearby receptors meet the City’s Noise Control Ordinance. In residential areas this includes a minimum of 15 dBA of noise attenuation at residences 50 feet away from drilling activities. Due to the height of the drill rig, the noise barrier shall be at least 24 feet tall. The construction noise barrier shall be constructed of a material with a minimum weight of one pound per square foot with no gaps or perforations. It shall remain in place until conclusion of the nighttime construction activities. The Project plans and specifications shall include documentation from a noise consultant verifying the appropriate design details for an effective noise barrier.

#### MITIGATION MEASURE NOI-2: CONSTRUCTION NOISE REDUCTION MEASURES

The City shall require its contractor to implement the following actions relative to construction noise:

- The City shall conduct construction activities to between 7:00 a.m. and 6:00 p.m., on Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday, in accordance with the City of Sacramento Municipal Code, Section 8.68.080, with the exception of specific well drilling and testing activities, which require 24-hour continuous work.

- Prior to construction, the City in coordination with the construction contractor, shall provide written notification to all properties within 1,000 feet of the construction site, informing occupants of the type and duration of construction activities. Notification materials shall identify a method to contact the City's program manager with noise concerns. Prior to construction commencement, the City program manager shall establish a noise complaint process to allow for resolution of noise problems. This process shall be clearly described in the notifications.
- Stationary noise-generating equipment shall be located as far from sensitive receptors as possible. Such equipment shall also be oriented to minimize noise that would be directed toward sensitive receptors. Whenever possible, other non-noise generating equipment (e.g., water tanks, roll-off dumpsters) shall be positioned between the noise source and sensitive receptors.
- Equipment and staging areas shall be located as far from sensitive receptors as possible. At the staging location, equipment and materials shall be kept as far from adjacent sensitive receptors as possible.
- Construction vehicles and equipment shall be maintained in the best possible working order; operated by an experienced, trained operator; and shall utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds).
- Unnecessary idling of internal combustion engines shall be prohibited. In practice, this would require turning off equipment if it would idle for five or more minutes.
- Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment, where feasible.
- The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only.

### **3.10.3.6 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Master EIR is incorporated by reference and as a City project, the proposed Project adheres to the City's policies. The 2035 General Plan Master EIR found that impacts to noise resources within the City's planning area are less than significant when the General Plan Policies are implemented. The Project was adequately addressed in the 2035 General Plan Master EIR analysis and thereby found to have a cumulatively less than significant impact to noise resources.

### **3.10.4 REFERENCES**

Federal Highway Administration (FHWA). 2006. Construction Noise Handbook. August 2006.

Available online at:

[https://www.fhwa.dot.gov/Environment/noise/construction\\_noise/handbook/](https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/).

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September 2018. Available online at:

[https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf)

Sacramento, City of. 2015a. Sacramento 2035 General Plan. Adopted March 3, 2015.

Sacramento, City of. 2015b. Sacramento 2035 General Plan Background Report. Adopted March 3, 2015.

### *3.10.5 NOISE AND VIBRATION ACRONYMS AND ABBREVIATION*

CNEL	Community Noise Equivalent Level
CMU	Concrete Masonry Unit
L <sub>DN</sub>	Day-Night Average Sound Level
dBA	Decibel
L <sub>EQ</sub>	Equivalent Sound Level
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
L <sub>MAX</sub>	Maximum Sound Level
L <sub>MIN</sub>	Minimum Sound Level
PPV	Peak Particle Velocity
RCNM	Roadway Construction Noise Model
rms	Root Mean Square
VdB	Vibration Decibels

## 3.11 RECREATION

This section evaluates the potential recreation impacts associated with implementation of the proposed Project. Existing parks and recreational facilities in the vicinity are described. The impact analysis considers the potential for the Project to affect recreational facilities where wells would be located.

### 3.11.1 ENVIRONMENTAL SETTING

#### 3.11.1.1 City of Sacramento Parks and Recreation Facilities

The Sacramento Parks Department maintains approximately 4,829 acres of parkland; 230 parks, recreation, and open space sites; and other areas such as bikeways, trails, lakes, and aquatic facilities (City of Sacramento, 2022). The Parks Department categorizes parks according to three distinct park types:

- **Neighborhood Parks:** Neighborhood Parks are generally less than ten acres in size and are intended to be used primarily by residents within a 0.5-mile radius. They include landscaping and may have amenities such as playgrounds or unlighted sports facilities.
- **Community Parks:** Community Parks are generally 10 to 60 acres in size and have a service area of approximately two to three miles, encompassing multiple neighborhoods. In addition to neighborhood park elements, a community park might also have amenities such as restrooms, parking, a swimming pool, lighted sports fields or courts, and other specialized facilities not found in a neighborhood park.
- **Citywide/Regional Parks/Parkways:** Citywide/Regional Parks are larger sites developed with a wide range of improvements to meet the needs of the entire City population. In addition to neighborhood and community park type improvements, regional parks may include amenities such as a golf course, marina, amusement area, zoo, or nature area. Parkways have limited recreational uses and are primarily used as corridors for pedestrians and bicyclists, linking residential uses to schools, parks, and commercial developments.

Parks may include developed areas, undeveloped areas (i.e., parkland intended for future development as a park), and open space (i.e., land that is set aside and returned to its natural state or existing natural land). Open space may be found in any of the park types but is most likely to be found in regional or community parks.

Several facilities within the City are owned or operated by other jurisdictions such as the County of Sacramento, State of California, and Sacramento City Unified School District (City of Sacramento, 2015b). The total park and parkway area managed by other jurisdictions totals approximately 2,339 acres (City of Sacramento, 2015b).

The proposed Project has identified 11 parks as options for new well sites. The types, locations, sizes, and facilities at each of these parks are summarized in **Table 3.11-1**.

**Table 3.11-1: Parks Proposed as Well Sites**

Well No.	Park Name	Park Type	Address	Size (Acres)	Facilities
2	William Chorley Park	Community	7063 20 <sup>th</sup> Street	32.50	Trails, soccer field, picnic area, playground, nature area
4	Tahoe Park	Community	3501 59 <sup>th</sup> Street	18.80	Trails, softball field, baseball field, soccer field, volleyball court, basketball court, restroom, play pool, swimming pool, picnic areas
5	Glenn Hall Park	Community	5415 Sandburg Drive	7.08	Softball field, baseball field, soccer fields, volleyball courts, tennis courts, restroom, swimming pool, picnic area, playground
6	Glenbrook Park	Community	8500 La Riviera Drive	17.56	Softball field, baseball fields, soccer fields, tennis courts, restroom, picnic areas, playgrounds, dog park
7	Granite Park	Regional	8200 Ramona Avenue	92.71	Soccer fields, pond, picnic areas, skateboard park, dog park, nature area
8	Camellia Park	Neighborhood	6650 Cougar Drive	2	Tennis courts, picnic area, community garden
9, 36	Danny Nunn Park (formerly Florin Reservoir Park)	Community	6880 Power Inn Road	13.88	Soccer field, basketball courts, picnic areas, playgrounds, community garden
17	Johnston Park	Community	231 Eleanor Avenue	26.85	Softball fields, baseball field, soccer fields, basketball courts, wading pool, swimming pool, playgrounds
22	Robertson Park	Community	3525 Norwood Avenue	9.18	Softball field, soccer field, basketball courts, restrooms, play pool, picnic areas, playgrounds, skateboard park
23	Gardenland Park	Neighborhood	310 Bowman Avenue	6.05	Softball field, volleyball court, basketball court, restroom, picnic areas, playgrounds, splash pad
27	Hagginwood Park	Community	3271 Marysville Boulevard	15.5	Trails, softball field, baseball field, soccer field, basketball court, restroom, picnic area, playgrounds

Source: City of Sacramento, 2009.

The City's park service level goals (discussed further under *Section 3.11.2, Regulatory Framework*) are summarized in **Table 3.11-2**. When considering City owned/controlled parks alone, the service level goals are met for Community Service parks, but not met for the other park types as shown in **Table 3.11-2**. When including park spaces not controlled by the City (e.g., schools), the City meets its service level goal for Neighborhood Serving and Community Serving parks but does not meet the service level goal for Citywide/Regional Serving and Linear Parks.

**Table 3.11-2: Park Service Level Goals and Existing Service Levels**

Park Types	Service Level Goal*	Existing (City Owned/ Controlled)**	Existing (including schools)**
	Acres per 1,000 Residents		
Neighborhood Serving	1.75 acres	1.6 acres	2.5 acres
Community Serving	1.75 acres	1.8 acres	2.4 acres
Citywide/Regional Serving	8.0 acres	3.3 acres	3.3 acres
Linear Parks	0.5 linear miles	0.2 linear miles	--

Source: \*City of Sacramento, 2022; \*\*City of Sacramento 2015b

### 3.11.2 REGULATORY FRAMEWORK

This section describes local policies and regulations that may apply to the proposed Project. No federal or state policies are applicable to the Project's potential effects on recreation.

#### 3.11.2.1 Local Policies and Regulations

##### CITY OF SACRAMENTO 2035 GENERAL PLAN

Sacramento has identified the following goals and policies in the City's 2035 General Plan:

**GOAL ERC 2.1: Integrated Parks and Recreation System.** Provide an integrated system of parks, open space areas, and recreational facilities that are safe and connect the diverse communities of Sacramento.

- **Policy ERC 2.1.1: Complete System.** The City shall develop and maintain a complete system of parks and open space areas throughout Sacramento that provide opportunities for both passive and active recreation.

**GOAL ERC 2.2: Parks, Community and Recreation Facilities and Services.** Plan and develop parks, community and recreation facilities, and services that enhance community livability; improve public health and safety; are equitably distributed throughout the City; and are responsive to the needs and interests of residents, employees, and visitors.

- **Policy ERC 2.2.1: Parks and Recreation Master Plan.** The City shall maintain and implement a Parks and Recreation Master Plan to carry out the goals and policies of this General Plan. All new development will be consistent with the applicable provisions of the Parks and Recreation Master Plan.
- **Policy ERC 2.2.3: Service Level Radius.** The City shall strive to provide accessible public park or recreational open space within one-half mile of all residences.

- **Policy ERC 2.2.4: Park Acreage Service Level Goal.** The City shall strive to develop and maintain 5 acres of neighborhood and community parks and other recreational facilities/sites per 1,000 population.
- **Policy ERC 2.2.7 Public Parkland Preservation.** The City shall ensure that any public parkland converted to nonrecreational uses is replaced to serve the same community, consistent with California's Public Park Preservation Act of 1971 (Public Resources Code Section 5401) (RDR/MPSP).

## CITY OF SACRAMENTO PARKS AND RECREATION MASTER PLAN

The Parks and Recreation Master Plan includes a list of policies that reflect organizational goals and values (City of Sacramento, 2009). The following policies relate to park acreage service levels, size, and park priorities:

**Policy 10.13** Acquire land for additional public green space in underserved neighborhoods and infill development target areas.

**Policy 12.1** Achieve Park Acreage Service Level Goals to provide public recreational opportunities within a reasonable distance of all residences and work places as follows:

- a) 5.0 acres per 1,000 population consisting of two park categories:
  1. Neighborhood Serving: 2.5 acres per 1,000 population with a service area guideline of ½ mile.
  2. Community Serving: 2.5 acres per 1,000 population with a service area guideline of three miles, portions of which may also serve neighborhood needs.
- b) Citywide/Regionally Serving: 8.0 acres per 1,000 population, portions of which may also serve either neighborhood or community needs.
- c) Linear Parks/Parkways and Trails/Bikeways: 0.5 linear miles/1,000 population of trails/bikeways implemented per adopted City Bikeway and Pedestrian Master Plans.

### 3.11.3 IMPACT ANALYSIS

#### 3.11.3.1 Methodology for Analysis

Recreational impacts are assessed based on the Project's level of direct and indirect physical impact on existing and planned parks and recreational facilities in the vicinity.

#### 3.11.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018, an impact on recreation would be considered significant if the Project would:

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

### **3.11.3.3 Criteria Requiring No Further Evaluation**

The Initial Study determined that the Project would not have significant impacts associated with the following criteria:

- **Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.** The proposed Project would not include or require the construction or expansion of recreational facilities which could have an adverse physical impact on the environment; there would be no impact.

### **3.11.3.4 Impacts and Mitigation Measures**

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**Impact REC-1      Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.**

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#### IMPACT REC-1 ANALYSIS

The proposed Project does not include the development of new housing or employment opportunities that would increase use of existing recreation facilities. The Project would also not directly or permanently increase use of existing neighborhood and regional parks or other recreational facilities. However, twelve of the proposed well sites are located at parks, as summarized in **Table 3.11-1**, and well construction at parks could cause deterioration of park facilities as described below.

#### CONSTRUCTION

Construction of the Project at park sites could result in direct impacts to park facilities that could cause deterioration. Basketball courts, parking lots, grass areas, or walking paths could be used for site access, well site placement, or staging areas. As described in the *Project Description* (Chapter 2) these impacts may occur for the duration of construction but would not cause damage that would last beyond the conclusion of construction because the Project includes in-kind restoration of construction sites (Section 2.6). Restoration would include, but would not be limited to, repaving any deteriorated parking or hard surface areas, resodding any deteriorated grass areas, and restoring any impacted pathways. Construction and restoration plans would be vetted by the Sacramento Parks Department for clearance. Construction would not prevent use of the park facilities or green spaces except within the construction and staging areas. Construction impacts

would be temporary and would not prevent visitors from using the remainder of the park areas. Therefore, the Project would not result in substantial physical deterioration of the facility and impacts would be less than significant.

Construction of the Project may temporarily deter use of the park sites, which could result in a temporary increase in use at other park locations. Because the duration of construction would be limited, and multiple alternate park locations are available, the nature and volume of park use while construction is occurring is not expected to increase the use of alternative park locations enough to cause a substantial acceleration or physical deterioration of the alternative park site. Potential indirect construction impacts would be less than significant.

Because of the limited footprint and duration of construction activities, the impact to recreational facilities associated with construction of the Project would be less than significant.

### OPERATION

Once construction is complete, the park facilities and uses would continue as before and the proposed Project would not result in physical deterioration of the existing recreational facilities. Installation of wells would occur within open, landscaped green spaces at each park and would not require the removal of any park facilities or equipment. Design of the proposed well sites would avoid impacting park features and facilities such as playground equipment, picnic benches, barbecues, baseball fields, and soccer fields. The wells would be sited to avoid disturbing park use and to blend the wells with other park facilities as well as shielded or screened as appropriate. Well designs would also be in compliance with City's Crime Prevention Through Environmental Design (CPTED) review.

Well siting (as described in the *Section 2.5 Project Description*) was done with the objective of minimizing impact on existing land uses. In the park context, sites were selected to be located along park boundaries, within the edge of a parking lot, directly adjacent to other buildings or developed features (such as pool areas), or near groups of trees but not so close as to require tree removal. The amount of park space required at each well site varies depending on the treatment equipment needed (an average of approximately 14,400 square feet [0.33 acre] per well) and in total, would replace approximately 4 acres of green space, which represents a negligible fraction of the total City's park areas (approximately 0.1 percent of the total park area). This small loss of park space would not be substantial enough to displace users to other park locations in a volume that could substantially cause physical deterioration. Thus, the Project would not appreciably alter existing park use and would have a less than significant impact.

Additionally, O&M activities would require chemical deliveries and intermittent well maintenance such as pump testing and maintenance, well capacity testing, or rehabilitation of the well during the life of the well. The O&M activities would be minimal and would not interfere with regular use of parks and their facilities and thus would have no impact.

The proposed Project would not appreciably reduce park service ratios nor permanently increase the use of parks and recreational facilities. Therefore, the proposed Project would have a less than significant impact.

### ***IMPACT REC-1 FINDINGS***

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required

#### **3.11.3.5 Mitigation Measures**

No mitigation required.

#### **3.11.3.6 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Master EIR is incorporated by reference and as a City project, the proposed Project adheres to the City's policies. The 2035 General Plan Master EIR found that impacts to recreation resources within the City's planning area are less than significant when the General Plan Policies are implemented. The Project was adequately addressed in the 2035 General Plan Master EIR analysis and thereby would also have a cumulatively less than significant impact to recreation resources.

#### **3.11.4 REFERENCES**

Sacramento, City of. 2009. City of Sacramento Parks and Recreation Master Plan 2005-2010. Adopted April 21, 2009.

Sacramento, City of. 2015a. Sacramento 2035 General Plan. Adopted March 3, 2015.

Sacramento, City of. 2015b. Sacramento 2035 General Plan Background Report. Adopted March 3, 2015.

Sacramento, City of. 2022. Personal Communication with Brianna Moland, August 11, 2022.

#### **3.11.5 RECREATION ACRONYMS AND ABBREVIATION**

CPTED	Crime Prevention Through Environmental Design
ERC	Education, Recreation, and Culture
O&M	Operation and Maintenance

## 3.12 TRANSPORTATION

This section evaluates the potential transportation impacts associated with implementation of the proposed Project.

### 3.12.1 ENVIRONMENTAL SETTING

This section provides an overview of the existing transportation network within the City of Sacramento as the proposed Project includes well sites throughout City limits. The City's roadway network is a combination of Federal interstates, a United States highway, California State highways, and city streets and is extensively used for personal vehicle travel (City of Sacramento, 2015). The transportation and circulation study area extends beyond the Project sites and includes the roadways and transportation facilities that could be affected by the Project.

#### 3.12.1.1 Existing Regional Traffic Circulation System

The Project sites would likely use each of the major interstate freeways and other major regional highways located within the City of Sacramento. The freeways are described below (City of Sacramento, 2015).

##### INTERSTATE 5

I-5 is the main north-south freeway that extends from Mexico to the Canadian border. Within the City of Sacramento, the freeway travels along the eastern bank of the Sacramento River through Downtown. I-5 primarily links South Sacramento, the Central Business District in Downtown Sacramento, Natomas, and the Sacramento International Airport. This freeway is also used as a primary route by long-distance truck traffic. I-5 includes six to eight travel lanes within the City.

##### INTERSTATE 80

I-80 is the main east-west freeway that extends from California to New Jersey. Within California, I-80 connects the San Francisco Bay Area to Lake Tahoe and Reno, Nevada. Interstate 80 serves as a bypass of Downtown Sacramento, and travels through the northern portion of the City. This freeway is a major commute route for employees traveling into Sacramento from northeastern suburbs and the west. It also serves as a major truck route between the San Francisco Bay Area, Sacramento, Tahoe, and points east. Within the City, I-80 has six mainline travel lanes and a project is currently under way to add one high-occupancy vehicle (HOV) lane in both directions between I-5 and Business 80.

##### BUSINESS 80

Business 80 is also known as the Capital City Freeway or State Route 51 (SR-51). It extends northeast from Downtown Sacramento and connects to I-80 just east of Watt Avenue. Business 80 serves as a link to the central area of the City and provides access to major regional destinations

including Cal Expo and Arden Fair Mall. Business 80 has six to ten lanes within the City and one HOV lane in both directions between E Street and SR 99.

## US HIGHWAY 50

US Highway 50 is a major east/west route and extends from I-80 near Downtown Sacramento to the Tahoe Basin and Ocean City, Maryland. Within the City, US 50 functions as freeway with eight to ten travel lanes. US 50 connects Downtown Sacramento to the eastern suburbs, including the cities of Rancho Cordova and Folsom.

## STATE ROUTE 16

State Route 16 (SR 16), also known as Jackson Highway, is a designated State highway that links the City to eastern Sacramento County and Amador County. Apart from portions of the route co-designated with major freeways, SR 16 stretches approximately 1.5 miles within the City from US 50 and Howe Avenue to South Watt Avenue.

## STATE ROUTE 99

State Route 99 is a freeway that extends south from Business 80 to South Sacramento, Elk Grove, and through the Central Valley. This freeway has four to six lanes and one HOV lane in both directions on the major commute portion of the freeway between Downtown Sacramento and the southern suburbs. A portion of SR 99 is co-designated with US 50 and I-5 through Downtown Sacramento and Natomas. SR 99 separates from I-5 near the northern City limit, stretching to the north as a four-lane freeway.

## STATE ROUTE 160

State Route 160 within the City of Sacramento limits remains under Caltrans control for a distance of approximately 2 miles between Downtown Sacramento and Business 80. This spur off the regional freeway system extends across the American River and is a key route for trips between the central portion of the City and the northeastern suburbs. All other portions of this route located in the City are relinquished by Caltrans to the City of Sacramento.

### **3.12.1.2 Existing City Roadways**

The Project sites are located within residential, school, park, commercial, and industrial areas. The City's roadways are divided into the following classifications (City of Sacramento, 2015):

- **Arterial Streets:** Provide mobility for high traffic volumes between various parts of the City and the region, serving through traffic as well as local traffic. Arterials typically link freeways to collector and local streets. The City of Sacramento's transportation network includes suburban and urban arterials with the suburban arterials generally having higher speeds and more access control. Urban arterials generally have lower speeds and less access control because of the intensity of an urban developed environment. Arterials within the City may have up to eight travel lanes.

- **Collector Streets:** Provide for relatively short distance travel between and within neighborhoods. Collector streets generally have lower speeds and traffic volumes compared to arterial streets. Driveway access to collectors is less limited compared to arterials but may still be discouraged. Collectors within the City may have up to four travel lanes.
- **Local Streets:** Provide direct roadway access to abutting land uses and serve for short distance trips within neighborhoods. Traffic volumes and speed limits on local streets are low and these roads have no more than two travel lanes.

Many of the major city roadways that provide arterial connections to the regional freeway system would be used to access the Project sites. Listed below are all of the City's major arterial connections to the freeway system (City of Sacramento, 2015):

- Pocket Road
- Florin Road
- Seamas Avenue / Fruitridge Road
- Sutterville Road
- P Street & Q Street
- I Street & J Street
- Richards Boulevard
- Garden Highway
- El Camino Avenue
- Arena Boulevard
- Del Paso Road
- Elkhorn Boulevard
- Truxel Road
- Northgate Boulevard
- Norwood Avenue
- Marysville Boulevard / Raley Boulevard
- Consumnes River Boulevard
- Mack Road
- 47<sup>th</sup> Avenue
- Exposition Boulevard
- Arden Way
- Marconi Avenue
- Fulton Avenue
- Watt Avenue
- Stockton Boulevard
- 65<sup>th</sup> Street
- Power Inn Road / Howe Avenue

The regional freeway system and major arterial roads connecting the City's freeways would be used to access the Project sites. In addition, the following table, **Table 3.12-1**, includes the cross streets for each well site along with the nearest arterial, major collector, and/or minor collector. Not all well sites are located directly on a major street and therefore would indirectly impact transportation on designated arterials, major collectors, and/or minor collectors to gain access to the Project site.

**Table 3.12-1: Well Site Roadways**

Well Site	Well Site Cross Streets	Nearest Arterial	Nearest Major Collector	Nearest Minor Collector
Well 1	Matson Drive, Tamoshanter Way	Meadowview Road	24 <sup>th</sup> Street	21 <sup>st</sup> Street
Well 2	20 <sup>th</sup> Street, 60 <sup>th</sup> Avenue	Florin Road	24 <sup>th</sup> Street	

Well Site	Well Site Cross Streets	Nearest Arterial	Nearest Major Collector	Nearest Minor Collector
Well 3	Ventura Street, Encinal Avenue	47 <sup>th</sup> Avenue	24 <sup>th</sup> Street	
Well 4	8 <sup>th</sup> Avenue, 59 <sup>th</sup> Street	Broadway Boulevard		14 <sup>th</sup> Avenue
Well 5	Sandburg Drive, Carlson Drive	J Street	Elvas Avenue	Carlson Drive
Well 6	Stream View Way, Garden Path Court	Watt Avenue		La Riviera Drive
Well 7	Cucamonga Avenue, Ramona Avenue	Power Inn Road		Belvedere Avenue
Well 8	Cougar Drive, Hometown Way	Elder Creek Road		
Well 9	Rower Inn Road, 53 <sup>rd</sup> Avenue	Power Inn Road		
Well 10	South Avenue, Marysville Boulevard	Marysville Boulevard	Rio Linda Boulevard	South Avenue
Well 11	Bell Avenue, Rio Linda Boulevard	Bell Avenue	Rio Linda Boulevard	
Well 12	88 <sup>th</sup> Street, 43 <sup>rd</sup> Avenue	South Watt Avenue		
Well 13	Asher Lane	Elder Creek Road		
Well 14	Imagination Parkway	Bruceville Road	Calvine Road	Jacinto Avenue
Well 15	Fong Ranch Road, San Juan Road	San Juan Road		
Well 16	66 <sup>th</sup> Street, Fruitridge Street	Fruitridge Street		Lemon Hill Avenue
Well 17	Eleanor Avenue, Grove Avenue	Norwood Avenue	Rio Linda Boulevard	Eleanor Avenue
Well 19	West Elkhorn Boulevard, Natomas Boulevard	West Elkhorn Boulevard		Bridgecross Drive
Well 20	El Centro Road, Rynders Way	El Centro Road		
Well 21	Altos Avenue, Harris Avenue	Norwood Avenue	Rio Linda Boulevard	Grand Avenue
Well 22	Silver Eagle Road, Norwood Avenue	Silver Eagle Road, Norwood Avenue	Rio Linda Boulevard	Ford Road
Well 23	Bowman Avenue, Northgate Boulevard	Northgate Boulevard		
Well 24	Commerce Circle, Lathrop Way	Exposition Boulevard	Royal Oaks Drive	Fee Drive
Well 25	Fee Drive, Tribute Road	Exposition Boulevard	Royal Oaks Drive	Fee Drive
Well 26	Bell Avenue, Baumgart Way	Norwood Avenue		
Well 27	High Street, Rivera Drive	Marysville Boulevard	Arcade Boulevard	South Avenue
Well 28	Dry Creek Road, Ascot Avenue	Raley Boulevard	Main Avenue	Dry Creek Road
Well 29	Pell Drive	Main Avenue		
Well 30	Acacia Avenue, Rio Linda Avenue	Norwood Avenue	Rio Linda Avenue	Eleanor Avenue
Well 31	Juliesse Avenue, Del Paso Boulevard	Marysville Boulevard	Del Paso Boulevard	

Well Site	Well Site Cross Streets	Nearest Arterial	Nearest Major Collector	Nearest Minor Collector
Well 32	Los Robles Boulevard, Del Paso Boulevard	Marysville Boulevard	Arcade Boulevard	Del Paso Boulevard
Well 33	Grandstaff Drive, Bamford Drive	Center Parkway	Valley Hi Drive	Bamford Drive
Well 34	Challenge Way, Response Road	Exposition Boulevard	Heritage Lane	Challenge Way
Well 35	Cucamonga Avenue, Power Inn Road	Power Inn Road		Belvedere Avenue
Well 36	Power Inn Road, 53 <sup>rd</sup> Avenue	Power Inn Road		
Well 37	88 <sup>th</sup> Street, 43 <sup>rd</sup> Avenue	South Watt Avenue		
Well 38	E.A. Fairbairn, College Town Drive	Howe Avenue	College Town Drive	La Riviera Drive
Well 39	Terracina Drive, Truxel Road	Truxel Road		

### 3.12.1.3 Public Transportation

The City provides a wide range of transit services including public bus service, light rail transit, commercial bus service, and interregional and interstate passenger train service. The Sacramento Regional Transit District provides local bus and light rail services for the City and the greater Sacramento region, totaling an area of 418 square miles. The Sacramento Regional Transit operates 68 bus routes and three light rail lines (City of Sacramento, 2015). Well 3 is found on the Blue Line light rail route. The following well sites are found on a bus route:

- Well 4
- Well 6
- Well 7
- Well 16
- Well 20
- Well 21
- Well 22
- Well 27
- Well 28
- Well 30
- Well 34
- Well 35

### 3.12.1.4 Bicycle and Pedestrian Facilities

Walking travel varies greatly by neighborhood in Sacramento (City of Sacramento, 2015). Neighborhoods with the highest percentages of commuters who walk to work are located in the centralized city area while neighborhoods in the northern-most and southern-most portions of the City have the lowest percentages of residents who walk to work. **Table 3.12-2** lists well sites found within neighborhoods with the highest percentages of residents who walk to work.

**Table 3.12-2: Well Sites Located Within Neighborhoods with the Highest Percentages of Walking Commuters**

Well Site	Percent Commuters Walking
Well 3	0.1 – 0.5%
Well 4	0.1 – 0.5%
Well 5	0.1 – 0.5%
Well 6	0.1 – 0.5%
Well 7	0.5 – 1%
Well 8	0.1 – 0.5%
Well 9	0.1 – 0.5%
Well 17	0.1 – 0.5%
Well 24	<0.1%
Well 25	<0.1%
Well 30	0.1 – 0.5%
Well 33	0.1 – 0.5%
Well 34	0.1 – 0.5%
Well 35	0.5 – 1%
Well 36	0.1 – 0.5%
Well 38	0.5 – 1%

The City adopted the 2010 Sacramento City/County Bikeway Master Plan (1995) to promote bicycling as an alternative form of transportation for recreation and commute needs. There are three types of bikeways:

- Class I are off-street bike paths
- Class II are on-street bike lanes marked by pavement striping and signage
- Class III are on-street bike routes that share the road with motorized vehicles

Many of the roadways within the City contain on-street bike lanes (Class II) or are signed as a bicycle route (Class III). The majority of the well sites are located on or near Class II or Class III bikeways except for Wells 5, 11, 19, 21, 23, 24, and 39, which are on or near Class I bikeways.

### 3.12.2 REGULATORY FRAMEWORK

This section describes laws and regulations at the state and local level that may apply to the Project. There are no federal traffic and transportation regulations that apply to the Project.

#### 3.12.2.1 State Policies and Regulations

##### CALIFORNIA DEPARTMENT OF TRANSPORTATION

Caltrans is responsible for planning, designing, building, operating, and maintaining California's transportation system. Caltrans sets standards, policies, and strategic plans that aim to do the following: 1) provide the safest transportation system for users and workers; 2) maximize transportation system performance and accessibility; 3) efficiently deliver quality transportation projects and services; 4) preserve and enhance California's resources and assets; and 5) promote quality service. Caltrans has the discretionary authority to issue special permits for the use of State highways for other than normal transportation purposes. Caltrans also reviews all requests from utility companies, developers, volunteers, nonprofit organizations, and others desiring to conduct various activities within the State Highway right-of-way.

The following Caltrans regulations apply to potential transportation and traffic impacts associated with the proposed Project.

- **California Street and Highway Code Sections 660-711.** Caltrans encroachment regulations would apply to construction of the proposed pipelines within and immediately adjacent to roadways, as well as the transportation of construction crews and construction equipment throughout the proposed Project. Caltrans requires that permits be obtained for transportation of oversized loads, certain materials, and construction-related traffic disturbance.

##### CEQA GUIDELINES SECTION 15064.3, SUBDIVISION (B)

Section 15064.3 states that a lead agency may use models to estimate a project's vehicle miles traveled and methodology of choice to analyze impacts. For the purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. A project's effect on automobile delay shall not constitute a significant environmental impact.

- **Land Use Projects.** Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

- **Qualitative Analysis.** If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc.. For many projects, a qualitative analysis of construction traffic may be appropriate.
- **Methodology.** A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

CEQA requires environmental analyses to reflect a "good faith effort at full disclosure." (CEQA Guidelines, § 15151.) Thus, where methodologies exist that can estimate the full extent of vehicle travel from a project, the lead agency should apply them to do so. Analyses should also consider a project's both short- and long-term effects on VMT (Governor's Office of Planning and Research, 2018).

### **3.12.2.2 Local Policies and Regulations**

#### CITY OF SACRAMENTO

The City of Sacramento has identified the following goals and policies in the City's 2035 General Plan:

**GOAL M 1.1: Comprehensive Transportation System.** Provide a multimodal transportation system that supports the social, economic and environmental vision, goals, and objectives of the City, and is effectively planned, funded, managed, operated, and maintained.

- **Policy M 1.1.1: Right-of-Ways.** The City shall preserve and manage rights-of-way consistent with: the circulation diagram, the City Street Design Standards, the goal to provide Complete Streets as described in Goal M 4.2, and the modal priorities for each street segment and intersection established in Policy M4.4.1: Roadway Network Development, Street Typology System.
- **Policy M 1.1.2: Transportation Network.** The City shall manage the travel system to ensure safe operating conditions.
- **Policy M 1.1.3: Emergency Services.** The City shall prioritize emergency service needs when developing transportation plans and making transportation network changes.

- **Policy M 1.1.4: Facilities and Infrastructure.** The City shall effectively operate and maintain transportation facilities and infrastructure to preserve the quality of the system.

**Goal M 1.2: Multimodal System.** Increase multimodal accessibility (i.e., the ability to complete desired personal or economic transactions via a range of transportation modes and routes) throughout the city and region with an emphasis on walking, bicycling, and riding transit.

- **Policy M 1.2.3: Transportation Evaluation.** The City shall evaluate discretionary projects for potential impacts to traffic operations, traffic safety, transit service, bicycle facilities, and pedestrian facilities, consistent with the City's Traffic Study Guidelines.

**Goal M 1.4: Transportation Demand Management.** Reduce reliance on the private automobile.

- **Policy M 1.4.4: Off-Peak Deliveries.** The City shall encourage business owners to schedule deliveries at off-peak traffic periods.

### 3.12.3 IMPACT ANALYSIS

#### 3.12.3.1 Methodology for Analysis

This section evaluates whether construction and operation of the facilities associated with the proposed Project would result in significant impacts related to transportation.

A review of local and state regulations, policies, and plans was conducted to evaluate the Project's potential to conflict with transportation planning and policies. Vehicle miles traveled were calculated based on approximations of necessary operation and maintenance activities. The Technical Advisory on Evaluating Transportation Impacts in CEQA (Governor's Office of Planning and Research, 2018) was used in determining impacts based on the guidance that "projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact".

Construction activities lasting less than one year in duration were considered less-than-significant unless unique Project conditions warranted further impact considerations. Construction activities lasting over one year were assessed individually for potential to result in a significant transportation impact.

Long-term effects of operations and maintenance activities were assessed for frequency of vehicle trips and if operation actions would impact roadways, traffic routes, transportation planning, or emergency access.

#### 3.12.3.2 Thresholds of Significance

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018 an impact on aesthetics would be considered significant if the Project would:

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

### **3.12.3.3 Criteria Requiring No Further Evaluation**

All criteria require further evaluation.

### **3.12.3.4 Impacts and Mitigation Measures**

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<b>Impact TRA-1</b>	<b>Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.</b>
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#### IMPACT TRA-1 ANALYSIS

##### CONSTRUCTION IMPACTS

Construction of the proposed Project involves a relatively small number of trips, as discussed in *Section 2.5 Project Description*, which would be the main impact to circulation systems. The small number of trips would not conflict with the visions or the goals and policies of the City of Sacramento 2035 General Plan as discussed in the *Regulatory Framework* (Section 3.12.2). The City would comply with applicable policies and goals from the 2035 General Plan, which promotes accessible mobility and effective circulation for transit, roadway, bicycle, and pedestrian systems. Lane closures may occur during installation of pipelines in the rights-of-way; however, lane closures would be temporary and would comply with California Street and Highway Code Sections 660-711, which ensures the quality of the circulation system is protected even in the event of pipeline installation. The City would acquire a Caltrans permit per California Street and Highway Code Sections 660-711 when any transportation of oversized loads, certain materials, and construction-related traffic disturbance would occur on a state highway. Thus, construction of the proposed Project would have a less than significant impact.

##### OPERATION IMPACTS

The goals and policies of the City of Sacramento 2035 General Plan discussed in *Regulatory Framework* (Section 3.12.2) focus on creating and maintaining roadway systems that support pedestrians, transit, and bicycles. The operation of the proposed Project would conservatively generate approximately four to five trips per week, as discussed in *Section 2.5 Project Description*. An average of one vehicle trip per day would not conflict with any applicable goals or policies within the 2035 General Plan. In addition, all other operation and maintenance activities would

occur within the Project sites, which would limit obstructions to roadways or walking paths. Thus, operation of the proposed Project would have a less than significant impact.

### IMPACT TRA-1 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required.

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## **Impact TRA-2      Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).**

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### IMPACT TRA-2 ANALYSIS

#### CONSTRUCTION IMPACTS

As stated in the *Regulatory Framework* (Section 3.12.2), CEQA Guidelines Section 15064.3(b) requires an analysis of the proposed Project's contribution to vehicle miles travelled consistent with regulatory guidance on VMT analysis (Governor's Office of Planning and Research, 2018). As described in the *Project Description* (Section 2.5.3), during construction, the Project would generate an average of approximately 30 trips per day with a maximum of 90 trips per day, which is on average far less than the 110 trips per day that are presumed to result in a less than significant impact. The Project has limited impacts to transportation as construction trips are temporary and would not generate significant VMT. Therefore, the construction of the proposed Project would have a less than significant impact.

#### OPERATION IMPACTS

As mentioned above the Technical Advisory of Evaluating Transportation Impacts in CEQA details the evaluation of VMT as it is associated with project operation. The proposed Project would implement the City's Groundwater Master Plan without resulting in a significant increase in VMT. The Project would require limited operations and maintenance trips that are not anticipated to exceed an average of one trip per day over the life of the Project at a given well site, as described further in the *Project Description* (Section 2.5.4). Therefore, the proposed Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b) and would have a less than significant impact.

### IMPACT TRA-2 FINDINGS

**Significance before Mitigation:** Less than Significant

**Mitigation Measures:** None Required.

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<b>Impact TRA-3</b>	<b>Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)</b>
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## IMPACT TRA-3 ANALYSIS

CONSTRUCTION IMPACTS

The Project does not include any changes in roadway design but would entail short periods of construction within roadways to construct pipeline connections between the proposed wells and existing water and sewer lines. Pipeline construction would require lane closure that would temporarily change the configuration of the existing right-of-way along public roads; however, once installation is complete the road would be restored to pre-construction conditions. Lane closures could present a hazard to traffic. To ensure safety of motor vehicles, bicycles and pedestrians during any construction that necessitates work in public roadways, the City would implement **Mitigation Measure TRA-1**, which requires preparation and implementation of a Traffic Control Plan. The Traffic Control Plan would limit potential hazards from construction activities by identifying construction staging locations and establishing alternative routes in the event of a road closure, and traffic controls in the event of a lane closure. With the implementation of **Mitigation Measure TRA-1**, construction of the proposed Project would have a less than significant impact.

OPERATION IMPACTS

Operation of the proposed Project would not introduce features that could substantially increase hazards due to geometric design features because the Project features are below ground or in parcels outside of roadways. Therefore, operation of the proposed Project would have a less than significant impact.

IMPACT TRA-3 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure TRA-1 (see Section 3.12.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

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**Impact TRA-4      Result in inadequate emergency access.**

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## IMPACT TRA-4 ANALYSIS

CONSTRUCTION IMPACTS

During construction, temporary closures of roads could occur for installation of pipelines, which could interfere with emergency service access and emergency access, creating a potentially significant impact. Implementation of **Mitigation Measure TRA-1** would require the City to coordinate with local emergency responders in the event of a lane closure and ensure that access is maintained for emergency response traffic. **Mitigation Measure TRA-1** would reduce the potential for impairing or physically interfering with emergency response, evacuation, and emergency access. Thus, construction of the proposed Project would have a less than significant impact.

OPERATION IMPACTS

Operational activities would generally occur on Project sites and not in public rights-of-way with the potential to restrict emergency access. If maintenance work is required within roadways that restricts emergency access it would be considered a construction activity and would follow **Mitigation Measure TRA-1**, which requires coordination with emergency management services. Thus, operation of the proposed Project would have a less than significant impact.

IMPACT TRA-4 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** Mitigation Measure TRA-1 (see Section 3.12.3.5)

**Significance after Mitigation:** Less than Significant with Mitigation Incorporated

**3.12.3.5 Mitigation Measures**

## MITIGATION MEASURE TRA-1: TRAFFIC CONTROL PLAN

Prior to construction, the City of Sacramento shall require its construction contractor to prepare and implement a Traffic Control Plan, to be approved by the construction inspector and the City Transportation Division. The Traffic Control Plan may be prepared for the entire Project at once so long as enough construction specifics for each individual well are available; otherwise, a new plan or an amendment to the overarching plan shall be prepared for each construction activity. The Traffic Control Plan shall:

- Identify staging locations to be used during construction
- Identify safe ingress and egress points from staging areas
- Identify potential road or lane closures

- Establish haul routes for construction-related vehicle traffic
- Identify alternative safe routes to maintain pedestrian and bicyclist safety during construction

The City's project manager shall coordinate with emergency services (police, fire, and others) to notify these entities regarding construction schedule, Project alignment and siting, and potential delays due to construction. The City shall identify roadways and access points for emergency services and minimize disruptions to or closures of these locations.

The Traffic Control Plan shall include provisions for traffic control measures including barricades, warning signs, cones, lights, and flag persons, to allow safe circulation of vehicle, bicycle, pedestrian, and emergency response traffic. The Traffic Control Plan shall be reviewed and approved by the City's project manager and the construction inspector prior to Project construction. The City's construction inspector shall also provide the construction schedule and Traffic Control Plan to the City Transportation Division for review to ensure that construction of the proposed Project does not conflict with other construction projects that may be occurring simultaneously in the Project vicinity.

### **3.12.3.6 Cumulative Impact Analysis**

The City of Sacramento 2035 General Plan Master EIR found that impacts to transportation resources within the City's planning area are significant and unavoidable with adverse impacts to LOS on a segment of 47<sup>th</sup> Ave between SR 99 and Stockton Boulevard, however, there are no Project sites near this area and the project would not contribute to the significant and unavoidable impact. Thus, the Project's impact would not be cumulatively considerable. Additionally, the 2035 General Plan Master EIR found that increased traffic on freeway segments could have potentially significant impact. The proposed Project would temporarily contribute to this impact during construction of the Project with the intermittent transport of construction equipment and construction worker trips. These trips, however, would not be a cumulatively considerable addition to the potentially significant cumulative impact because construction workers are assumed to be going to various job sites within the City on a fairly continuous basis and the number of workers is inconsequential within the context of the total number of vehicle trips that occur within the City. The proposed Project is consistent with the policies listed in the Transportation analysis of the 2035 General Plan Master EIR and other cumulative impacts are less than significant when the General Plan Policies are implemented. The Project was adequately addressed in the 2035 General Plan Master EIR analysis and would not have a cumulatively considerable contribution to the cumulative impacts addressed in the 2035 General Plan Master EIR. Therefore, the Project's cumulative impact is less than significant.

### **3.12.4 REFERENCES**

Governor's Office of Planning and Research, 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. Accessed July 11, 2022. Available at: [https://opr.ca.gov/docs/20180416-743\\_Technical\\_Advisory\\_4.16.18.pdf](https://opr.ca.gov/docs/20180416-743_Technical_Advisory_4.16.18.pdf)

Sacramento, City of. 2014. Draft Master Environmental Impact Report for the City of Sacramento 2035 General Plan Update.

Sacramento, City of. 2015. Sacramento 2035 General Plan Background Report. Chapter 3 Mobility.

### *3.12.5 TRANSPORTATION ACRONYMS AND ABBREVIATIONS*

GHG	Greenhouse Gas
HOV	High-occupancy vehicle
LOS	Level-of-service
SR	State Route
VMT	Vehicle miles traveled

## 3.13 TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts of the project on Tribal cultural resources, both identified and undiscovered. Tribal cultural resources, as defined by Assembly Bill (AB) 52, Statutes of 2014, in Public Resources Code (PRC) Section 21074, are sites, features, places, cultural landscapes, sacred places and objects, with cultural value to a Tribe. A tribal cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. The unanticipated find of Native American human remains would also be considered a Tribal cultural resource, and are therefore analyzed in this section.

For the purpose of this analysis, the Study Area includes tribal cultural resources in the vicinity of the facilities to be constructed or modified under the proposed Project.

### 3.13.1 ENVIRONMENTAL SETTING

The discussion below defines the terms used in the tribal cultural resources evaluation and describes the tribal cultural setting of the region and study area.

#### 3.13.1.1 Regional Setting

The Sacramento region is characterized by the urban central city area, surrounded by suburbs and rural agricultural and residential areas.

#### REGIONAL ARCHAEOLOGICAL RESOURCES

According to the City's 2035 General Plan Master EIR, there are approximately 80 known significant archaeological resource sites within the 2035 General Plan Policy Area; however, a large portion of the city has not been surveyed for archaeological resources (City of Sacramento, 2014).

Archaeological materials, including human burials, have been found throughout the City, some in deeply buried contexts. Generalized areas of high sensitivity for cultural resources are located within close proximity to the Sacramento and American Rivers and moderate sensitivity areas were identified near other watercourses.

High sensitivity areas may be found in other areas related to the ancient flows of the rivers, with differing meanders than found today. Recent discoveries during infill construction in downtown Sacramento have shown that the downtown area is highly sensitive for both historic period archaeological- and pre-contact indigenous resources. Native American burials and artifacts were found in 2005 during construction of the New City Hall and historic period archaeological resources are abundant downtown due to the evolving development of the area and, in part, to the raising of the surface street level in the 1860s and 1870s, which created basements out of the first floors of many buildings.

## REGIONAL TRIBAL RESOURCES

Sacramento has been occupied by Native American tribes for thousands of years. Tribal cultural resources, including human burials, have been found throughout the City with areas of high sensitivity located near rivers and other watercourses, as noted above.

The proposed Project is situated within the lands traditionally occupied by the Valley Nisenan, or Southern Maidu. Many descendants of the Valley Nisenan are found through the larger Sacramento region and belong to the United Auburn Indian Community of the Auburn Rancheria (UAIC), Shingle Springs, Lone Band, Colfax-Todds Valley, and Wilton Rancheria tribes. The tribes actively participate in the identification, evaluation, preservation, and restoration of tribal cultural resources.

The UAIC is a federally recognized tribe comprised of both Miwok and Nisenan (Maidu) tribal members who are traditionally and culturally affiliated with the Project area. The tribe has deep spiritual, cultural, and physical ties to their ancestral land and are contemporary stewards of their culture and landscapes. It is the tribe's goal to ensure the preservation and continuance of their cultural heritage for current and future generations.

## REGIONAL PREHISTORIC CONTEXT

Sites recorded in the City's region include village sites, smaller occupation and special use sites, and lithic scatters. Native American use of the City was focused in higher spots along the rivers, creeks, and sloughs that provided water and sources of food. Recent findings, such as at City Hall, have helped further understand settlement patterns for the earliest inhabitants of the area as well as details to better understand dates of occupancy, use, and prehistoric period lifeways (City of Sacramento, 2014).

The first settlements in the Sacramento Valley likely occurred during the late Pleistocene and early Holocene (14,000 to 8,000 B.P) period. The City's location within a great valley and at the confluence of the Sacramento and American Rivers shaped its early and modern settlements. However, the archaeological record of such use is sparse. It is likely that Paleo-Indian populations occupied the area with villages located near watercourses (City of Sacramento, 2014).

The Sacramento Delta was one of the first regions in California to attract intensive archeological fieldwork. Between 1893 and 1901, archeologist J.A. Barr excavated many prehistoric mounds in the Stockton area. By 1931, archeological work was focused on the Consumnes River locality. Several of the previously investigated sites probably represent satellite encampments or small villages associated with major villages. The majority of the sites appear to be relatively late in time, and probably represent Plains Miwok. The activities practices are varied, but detailed studies on the faunal collection suggest season of occupation and a focus on fish species other than the main channel varieties (City of Sacramento, 2014).

One explanation proposes that the Middle Horizon represents an intrusion of ancestral Miwok speaking people into the lower Cosumnes, Mokelumne, and Sacramento River areas from the Bay Area. The Early Horizon may represent older Yokuts settlements or perhaps the speakers of an

Utian language who were somehow replaced by a shift of population(s) from the bay (City of Sacramento, 2014).

## REGIONAL ETHNOGRAPHIC CONTEXT

### NISENAN

A major portion of the City lies in the territory attributed to the Nisenan tribe, a branch of the Maidu group of the Penutian language family. Tribes from this language family dominated the Central Valley, San Francisco Bay area, and western Sierra Nevada foothills when European immigrants first arrived. The Nisenan controlled the drainages of the Yuba, Bear, and American Rivers as well as the lower portion of the Feather River. The tribes within this region referred to themselves as Nisenan, meaning "people", in spite of close linguistic and cultural similarities with the surrounding tribes. The main local village was of more importance to the people than the tribal designation and groups identified themselves by the name of the central village (City of Sacramento, 2014).

The Nisenan tribes' northern boundary has not been clearly established due to the language similarities to neighboring groups. The eastern boundary was the crest of the Sierra Nevada Mountains. The southern boundary was the confluence of the American and Sacramento Rivers. The western boundary extended from this point upstream to the mouth of the Feather River (City of Sacramento, 2014).

Both the valley and foothill Nisenan lived by hunting and gathering, with the latter providing the majority of their diet. Acorns in the forms of meal, soup or bread provided the staple diet, augmented by a wide variety of seeds and tubers. Hunting and fishing were regular practices, but provided less of the diet than vegetable foods. Bedrock mortar cups are frequently found throughout the range of oak trees. Salmon and eel were also caught at Salmon Falls near Folsom (City of Sacramento, 2014).

The Nisenan practiced "Kuksu Cult" religion, a widespread pattern among California Native Americans. Ceremonies congregated in the semi-subterranean dancehouse located at the central village and "cry sites" where the annual mourning ceremony for the dead took place. Later, the religious revival of the ghost dance also affected this area (City of Sacramento, 2014).

In 1833, a great epidemic swept through the Sacramento Valley. The epidemic has been attributed to malaria and killed approximately seventy-five percent of the native population, leaving only a small population of the original Maidu to face the intruding miners and settlers. The Nisenan of the mountain areas felt less of an impact from the European settlements than the Valley Nisenan who were subjected to some missionization. The Mountain Nisenan were later overwhelmed by the gold rush. Native ways of life were almost totally abandoned and today only a few families in Placer, Nevada, Yuba, and El Dorado counties identify themselves as Nisenan and can speak the language (City of Sacramento, 2014).

### PLAINS MIWOK

The southern portion of the City was controlled by the Plains Miwok. The most southerly Nisenan village was Sama, located near the point at which Riverside Boulevard parallels the Sacramento River. The Eastern Miwok represent one of the two main divisions of the Miwokan subgroup of the Utian language family. The Plains Miwok, one of five separate cultural and linguistic groups of the Eastern Miwok, occupied the lower reaches of the Mokelumne, Consumnes, and Sacramento Rivers, including the area of south Sacramento County surrounding the City. Linguistic studies suggest that the Plains Miwok was a distinct linguistic entity for the last 2,000 years which suggests that the Plains Miwok inhabited the Sacramento Delta for a considerable period of time (City of Sacramento, 2014).

The political organization of the Plains Miwok centered on the tribelet. Tribelets included 300 to 500 individuals and each tribelet was thought to control a specific area of resources and usually consisted of several villages or hamlets. Each tribelet was also divided along lineages who apparently localized to a specific geographic setting and most likely represented a village site and its associated satellite sites where the seasonal collection of resources occurred. Each settlement contained approximately 21 individuals (City of Sacramento, 2014).

The Plains Miwok's diet included a collection of floral resources such as acorns, buckeye, digger pine nuts, seeds from native grasses and various fresh greens. Faunal resources such as tule elk, pronghorn antelope, deer, jackrabbits, cottontails, beaver, gray squirrels, woodrats, quail and waterfowl were hunted. Fishing, particularly salmon and sturgeon, were a significant portion to the Plains Miwok diet. The primary method of collecting fish was by nets, but the use of bone hooks, harpoons and obsidian-tipped spears is also known (City of Sacramento, 2014).

The Eastern Miwok manufactured both twined and coiled baskets. The baskets were used for the collection and storage of seeds, basketry cradles and gaming. Tule mats were primarily used by the Plains Miwok as a floor covering. Other uses of tule included the manufacture of the tule balsa, a water craft in which native people navigated and exploited adjacent delta and major river systems (City of Sacramento, 2014).

Four main types of structures were known among the Eastern Miwok, depending on the environmental setting. In the mountains, the primary structure was a conical structure of bark slabs. At lower elevations, the structures were thatched, semi-subterranean earth-covered dwellings and two types of assembly houses used for ceremonial purposes (City of Sacramento, 2014).

The Plains Miwok were characterized as intensive hunter-gatherers, with an emphasis on gathering. The seasonal availability of floral resources defined the limits of the group's economic pursuits. Hunting and fishing subsistence pursuits accommodated the given distribution of resources. The Plains Miwok territory covered six seasonally productive biotic communities and as such native people could apparently afford to pick and choose the resources they ranked highest from each of these zones. The subsequent storage of floral resources (such as acorns in granaries) allowed for a more stable use of the resource base. The acorn was apparently the subsistence base needed to

provide an unusually productive environment as earlier non-acorn using peoples who resided in the same geographic setting apparently suffered some seasonal deprivation. Such an emphasis upon the gathering of acorns is consistent with the population increase evident during the Upper Emergent Period in California around 1500 to 1800 AD (City of Sacramento, 2014).

### **3.13.1.2 Project Setting**

The areas surrounding the Project sites are generally developed and built-out. The land uses surrounding the Project sites are described in *Chapter 2 Project Description Table 2.5-1* and **Table 2.6-1** and include single-family residential, multi-family residential, schools, commercial, office, public facilities (such as existing well sites, water storage facilities, and water treatment facilities), and open space/park.

#### **NATIVE AMERICAN HERITAGE COMMISSION SACRED LANDS FILE INVENTORY**

In response to a June 30, 2020 query of the Sacred Lands Inventory (SLI), the Native American Heritage Commission (NAHC) responded with positive results for resources indicating that Native American cultural resources are known to be located within the vicinity of the proposed Project (Basin Research Associates, 2020). The NAHC recommended contacting the Lone Band of Miwuk Indians and the UAIC for additional information on the positive results. In July 2020, letters and/or emails were sent to the 13 locally knowledgeable Native American individuals/organizations identified by the NAHC including the Lone Band of Miwuk Indians and the UAIC for additional information (Basin Research Associates, 2020). Two responses were received. In a July 28, 2020 e-mail message, the Wilton Rancheria indicated tribal resources that may be of significance to them and requested a meeting regarding possible avoidance of the resources and to allow for the Tribe to have a Native American Cultural Monitor present for this Project. The Wilton Rancheria is a federally recognized Indian Tribe. Additionally, an August 7, 2020 email message from UAIC requested additional location information (GIS shapefiles) for the 38 well locations in order to better assess potential impacts and give recommendations. The City provided the requested files on August 13, 2020.

#### **NORTH CENTRAL INFORMATION CENTER RECORDS SEARCH**

As part of the record search of the California Historical Resources Information System (CHRIS), North Central Information Center (NCIC), California State University Sacramento (CHRIS/NCIC File No. SCA-20-97 and SCA-20-98, dated June 30, 2020) for areas within a 250-foot radius of each well site (see **Table 3.4-1** in Section 3.4), one resource (P-34-005225) was identified as a tribal cultural landscape (TCL) and described as follows:

- The Sacramento River Tribal Cultural Landscape (SRTCL) (P-34-005225), measuring roughly 55 miles north-south by 3.5 to 10 miles east-west, extends from the confluence of the Feather River at Verona southwest of Knights Landing on the north to the Delta area near Collinsville on the south. The resource is a culturally significant natural landscape for its association with the cultural practices and beliefs of the Nisenan and Plains Miwok, maintaining the continuing

cultural identity of the living descendants, and contributing to the broader patterns of prehistory. The UAIC, the Wilton Rancheria, and the Lone Band of Miwok Indians regard this landscape as an area of tribal importance because of its association with events (traditional stories) such as how fire was acquired and how salmon received its color. Further, the UAIC cite the importance of the tule and tule habitat (yakin) as materials for creating traditional structures, clothing, and watercraft (Basin Research Associates, 2022).

## ASSEMBLY BILL 52 TRIBAL OUTREACH

In accordance with Assembly Bill (AB) 52, discussed in *Section 3.13.2.1 State Policies and Regulations*, the City initiated tribal consultation for the project via e-mail letters sent on March 22, 2022 to the four tribes on the City's AB 52 tribal notification list. The City received one response via e-mail from the UAIC on April 12, 2022. UAIC informed the City that well sites 5 and 24 are in highly sensitive Sacred Lands area with known burials. The UAIC indicated that the remaining well sites are either low to moderate sensitivity, with no tribal cultural resources located in or directly adjacent to them.

### 3.13.2 REGULATORY FRAMEWORK

This section describes laws and regulations at the state and local level that may apply to the Project. There are no applicable federal regulations that specifically address tribal cultural resources.

#### **3.13.2.1 State Policies and Regulations**

##### CALIFORNIA ENVIRONMENTAL QUALITY ACT

Under CEQA (PRC Section 21084.1), a project will have a significant effect on the environment if it causes a substantial adverse change in the significance of a historical resource. The CEQA Guidelines (14 California Code of Regulations [CCR] Section 15064.4) recognize that a historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be a historical resource as defined in PRC Section 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, then the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.4 apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of

the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired) in the significance of a historical resource, then the lead agency must identify potentially feasible measures to mitigate these effects (14 CCR Section 15064.4[b][1], 15064.4[b][4]).

If an archaeological site does not meet the historical resource criteria contained in the CEQA Guidelines, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in PRC Section 21083.2, a “unique” archaeological resource is an archaeological artifact, object, or site, for which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in PRC Section 21083.2, then the site is to be treated in accordance with the provisions of PRC Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (PRC Section 21083.1[a]). If preservation in place is not feasible, mitigation measures shall be required.

If an archaeological resource is neither a unique archaeological nor a historical resource, then the effects of the project on those resources shall not be considered a significant effect on the environment (14 CCR Section 15064.4[c][4]).

## ASSEMBLY BILL 52

Governor Brown approved the CEQA amendments set forth in Assembly Bill No. 52 (AB 52), relating to Native Americans, in 2014. The AB 52 amendments to CEQA specify that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource, as defined in PRC Section 21074, is one that may have a significant effect on the environment. AB 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation, prior to determining which form of CEQA documentation is required for a project.

AB 52 established that Tribal Cultural Resources (TCRs) must be considered under CEQA and also required the lead agency to provide additional Native American consultation. PRC Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe. A TCR is defined as follows:

(a) Tribal cultural resources are either of the following:

Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

- (a) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
- (b) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

- (b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.
- (c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

The lead agency is required to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of negative declaration, mitigated negative declaration, or environmental impact report.

Section 1(a)(9) of AB 52 establishes that “a substantial adverse change to a tribal cultural resource has a significant effect on the environment.” Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds PCR Section 21080.3.2, which states that parties may propose mitigation measures “capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource.” Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topic (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring

and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

## CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Created in 1992 and implemented in 1998, the California Register is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change.” Certain properties, including those listed in, or formally determined eligible for listing in, the National Register and California Historical Landmarks numbered 770 and higher, automatically are included in the California Register. Other properties recognized under the California Points of Historical Interest Program, identified as significant in historic resources surveys or designated by local landmarks programs, may be nominated for inclusion in the California Register. A resource, either an individual property or a contributor to a historic district, may be listed in the California Register if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on National Register criteria:

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

Furthermore, under state law (PRC Section 5024.1; 14 CCR Section 4852[c]), a cultural resource must retain integrity to be considered eligible for the California Register. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association.

Typically, an archaeological site in California is recommended eligible for listing in the California Register based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods, or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions. However, archaeological sites may also be recommended eligible under California Register Criteria 1, 2, and/or 3.

## CALIFORNIA HEALTH AND SAFETY CODE SECTIONS 7050 AND 7052

California Health and Safety Code Section 7050.5 declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. California Health and Safety Code Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

## NATIVE AMERICAN HERITAGE COMMISSION (CALIFORNIA PUBLIC RESOURCES CODE SECTION 5097.91)

PRC Section 5097.91 established NAHC, the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. PRC Section 5097.98 specifies a protocol to be followed when the NAHC is notified by a county coroner of a discovery of Native American human remains.

## CALIFORNIA PUBLIC RESOURCES CODE SECTION 5097.98

PRC Section 5097.98 protects Native American burials from disturbance or destruction upon discovery. PCR Section 5097.98 addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NAHC to resolve disputes regarding the disposition of such remains.

## CALIFORNIA PUBLIC RESOURCES CODE SECTION 5097.5 AND 30244

PCR Section 5097.5 prohibits "knowing and willful" removal, destruction, injury, defacement, and excavation upon any historic or prehistoric ruins, burial grounds, or archaeological or vertebrate paleontological site situated on public lands (lands under state, county, city, district, or public authority ownership or jurisdiction, or the ownership or jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. PRC Section 30244 requires reasonable mitigation for impacts on archaeological or paleontological resources that occur as a result of development on public lands.

### ***3.13.2.2 Local Policies and Regulations***

#### CITY OF SACRAMENTO 2035 GENERAL PLAN

City of Sacramento has identified the following goals and policies in the 2035 General Plan:

**GOAL HCR 1.1 - Comprehensive City Preservation Program.** Maintain a comprehensive, citywide preservation program to identify, protect, and assist in the preservation of Sacramento's historic and cultural resources.

**GOAL HCR 2.1: Identification and Preservation of Historic and Cultural Resources.** Identify and preserve the City's historic and cultural resources to enrich our sense of place and our understanding of the City's prehistory and history.

- **Policy H.C.R 2.1.1: Identification.** The City shall identify historic and cultural resources, including individual properties, districts, and sites (e.g., archaeological sites), to ensure adequate protection of these resources.
- **Policy HCR 2.1.2: Applicable Laws and Regulations.** The City shall ensure compliance with City, State, and Federal historic preservation laws, regulations, and codes to protect and assist in the preservation of historic and archaeological resources, including the use of the California Historical Building Code as applicable. Unless listed in the Sacramento, California, or National registers, the City shall require discretionary projects involving resources 50 years and older to evaluate their eligibility for inclusion on the California or Sacramento registers for compliance with the California Environmental Quality Act.
- **Policy HCR 2.1.3: Consultation.** The City shall consult with appropriate organizations and individuals (e.g., CHRIS Information Centers, NAHC, the CA Office of Planning Research (OPR) "Tribal Consultation Guidelines", etc.) and shall establish a public outreach policy to minimize potential impacts to historic and cultural resources.
- **HCR 2.1.5: National, California, and Sacramento Registers** - The City shall support efforts to pursue eligibility and listing for qualified resources including historic districts and individual resources under the appropriate National, California, or Sacramento registers.
- **Policy HCR 2.1.6: Planning.** The City shall take historical and cultural resources into consideration in the development of planning studies and documents.
- **Policy HCR 2.1.8: Historic Preservation Enforcement.** The City shall ensure that City enforcement procedures and activities comply with local, State, and Federal historic and cultural preservation requirements.
- **Policy HCR 2.1.11: Compatibility with Historic Context.** The City shall review proposed new development, alterations, and rehabilitation/remodels for compatibility with the surrounding historic context. The City shall pay special attention to the scale, massing, and relationship of proposed new development to surrounding historic resources.
- **Policy HCR 2.1.16: Archaeological & Cultural Resources.** The City shall develop or ensure compliance with protocols that protect or mitigate impacts to archaeological and cultural resources including prehistoric resources.
- **Policy HCR 2.1.17: Preservation Project Review.** The City shall review and evaluate proposed development projects to minimize impacts on identified historic and cultural resources, including projects on Landmark parcels and parcels within Historic Districts, based on applicable adopted criteria and standards.

### 3.13.3 IMPACT ANALYSIS

#### **3.13.3.1 Methodology for Analysis**

As described above in *Section 3.4.1.2 Project Setting*, the results of the CHRIS NCIC records search and NAHC SLF and coordination with local tribal representatives were used to identify potential known tribal cultural resources that may overlap or be impacted by the proposed Project.

In addition, reference material from the Bancroft Library at the University of California, Berkeley, Basin Research Associates and available information on the web was also consulted. Where available, Google "Street Views" of the locations were reviewed to examine each location. Reference sources included:

- *National Register of Historic Places* listings for Sacramento County, California);
- *OHP Built Environment Resources Directory* [BERD];
- *Listed California Historical Resources* with the most recent updates of the National Register of Historic Places; California Historical Landmarks; and, California Points of Historical Interest as well as other evaluations of properties reviewed by the State of California Office of Historic Preservation;
- *California History Plan*;
- *California Inventory of Historic Resources*;
- *Five Views: An Ethnic Sites Survey for California*; and
- *Archaeological Determinations of Eligibility*.

The records and literature review and context provided in *Section 3.4.1 Environmental Setting* were used to screen Project sites for potential cultural and tribal cultural resources. Sites with resources were identified for further evaluation to assess project impacts based on the guidance and requirements identified by the regulations and policies identified in *Section 3.4.2 Regulatory Framework* and used to consider whether a significant impact would occur under each of the thresholds of significance described in *Section 3.4.3.2 Thresholds of Significance* above. Sites that had not previously been surveyed were evaluated for their likelihood of having resources present. Sites that were previously surveyed with no resources that meet the significance criteria as defined by the regulations in *Section 3.4.2* were determined to not have potential to be significantly affected by the proposed Project.

UAIC conducted a records search for the identification of Tribal Cultural Resources for this project which included a review of pertinent literature and historic maps, and a records search using UAIC's Tribal Historic Information System (THRIS). UAIC's THRIS database is composed of UAIC's areas of oral history, ethnographic history, and places of cultural and religious significance, including UAIC Sacred Lands that are submitted to NAHC. The THRIS resources shown in this region also include previously recorded indigenous resources identified through CHRIS as well as historic resources and survey data.

### **3.13.3.2 Thresholds of Significance**

Consistent with Appendix G of the *CEQA Guidelines*, as updated in December 2018 an impact on aesthetics would be considered significant if the Project would:

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

### **3.13.3.3 Criteria Requiring No Further Evaluation**

All criteria require further evaluation.

### **3.13.3.4 Impacts and Mitigation Measures**

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<b>Impact TCR-1</b>	<p><b>Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC, Section 21074, as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</b></p> <ul style="list-style-type: none"> <li>▪ <b>Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC, Section 5020.1(k), or</b></li> <li>▪ <b>A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC, Section 5024.1(c). In applying the criteria set forth in PRC, Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.</b></li> </ul>
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## IMPACT TCR-1 ANALYSIS

### CONSTRUCTION IMPACTS

The Area of Potential Effects (APE) includes all areas where direct or indirect impacts to tribal cultural resources could occur within the 38 well sites. The horizontal APE for each well is approximately one acre that would include both the drill rig area and the above grade facilities needed for water production and connection to delivery pipelines. The Vertical APE includes subsurface disturbance within the one acre well site (200 x 200 feet) for pipe installation and piping and other subsurface infrastructure associated with water production and treatment. In addition, test drilling for the well bores would range from 250 to 1,200 feet.

Construction staging areas and temporary construction work spaces (including equipment, laydown of materials and storage of excavated materials) are anticipated and would occur within the well site or immediately adjacent project site. Staging areas would typically be in parking lots, city streets, lawn areas, or vacant land with minimal improvements. The use of these areas would not result in any significant subsurface impacts.

Construction of the proposed Project would include ground disturbing activities that would be limited to the relatively small Project footprint. Given the proposed Project activities and the tribal cultural resources identified by the UAIC, the potential to encounter human remains is considered high for well sites 5 and 24 and low for all remaining well sites. Implementation of **Mitigation Measures TCR-1** through **TCR-3** would ensure training, procedures, and handling would take place in the event of any tribal cultural resource discovery, including human remains. Thus, construction of the proposed Project would have a less than significant impact.

### OPERATION IMPACTS

Operational activities would generally consist of regular maintenance, supply deliveries, and water quality sampling. Operational activities would generally be limited to the previously disturbed areas of the Project sites. The potential to discover human remains or other tribal cultural resources during these activities on a Project site that was previously disturbed is considered very low. Thus, operation of the proposed Project would have a less than significant impact.

### IMPACT TCR-1 FINDINGS

**Significance before Mitigation:** Potentially Significant

**Mitigation Measures:** **Mitigation Measures TCR-1, TCR -2 and TCR-3** (see Section 3.13.3.5)

**Significance after Mitigation:** Less than Significant after Mitigation Incorporated

### **3.13.3.5 Mitigation Measures**

#### **MITIGATION MEASURE TCR-1: CONDUCT TRIBAL CULTURAL RESOURCES SENSITIVITY AND AWARENESS TRAINING PROGRAM PRIOR TO GROUND-DISTURBING ACTIVITIES**

The City shall require the applicant/contractor to provide a cultural resources and tribal cultural resources sensitivity and awareness training program (Worker Environmental Awareness Program [WEAP]) for all personnel involved in project construction, including field consultants and construction workers. The WEAP will be developed in coordination with culturally affiliated Native American tribes. The WEAP shall be conducted before any project-related construction activities begin at the project site. The WEAP will include relevant information regarding sensitive cultural resources and tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating state laws and regulations.

The WEAP will also describe appropriate avoidance and impact minimization measures for cultural resources and tribal cultural resources that could be located at the project site and will outline what to do and who to contact if any potential cultural resources or tribal cultural resources are encountered. The WEAP will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and will discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.

#### **MITIGATION MEASURE TCR-2: IN THE EVENT THAT TRIBAL CULTURAL RESOURCES ARE DISCOVERED DURING CONSTRUCTION, IMPLEMENT AVOIDANCE AND MINIMIZATION MEASURES TO AVOID SIGNIFICANT IMPACTS AND PROCEDURES TO EVALUATE RESOURCES**

If cultural resources or tribal cultural resources (such as structural features, unusual amounts of bone or shell, artifacts, or human remains) are encountered at the project site during construction, work shall be suspended within 100-feet of the find (based on the apparent distribution of cultural materials), and the construction contractor shall immediately notify the project's City representative. Avoidance and preservation in place is the preferred manner of mitigating impacts to cultural resources and tribal cultural resources. This will be accomplished, if feasible, by several alternative means, including:

- Planning construction to avoid tribal cultural resources, archaeological sites and/or other cultural resources; incorporating cultural resources within parks, green-space, or other open space; covering archaeological resources; deeding a cultural resource to a permanent conservation easement; or other preservation and protection methods agreeable to consulting parties and regulatory authorities with jurisdiction over the activity.
- Recommendations for avoidance of cultural resources and tribal cultural resources will be reviewed by the City representative, interested culturally affiliated Native American tribes and other appropriate agencies, in light of factors such as costs, logistics, feasibility, design, technology and social, cultural and environmental considerations, and the extent

- to which avoidance is consistent with project objectives. Avoidance and design alternatives may include realignment within the project site to avoid cultural resources or tribal cultural resources, modification of the design to eliminate or reduce impacts to cultural resources or tribal cultural resources or modification or realignment to avoid highly significant features within a cultural resource or tribal cultural resource.
- Native American representatives from interested culturally affiliated Native American tribes will be consulted on the analyses and shall have the opportunity to meet with the City representative and its representatives who have technical expertise to identify and recommend feasible avoidance and design alternatives, so that appropriate and feasible avoidance and design alternatives can be identified.
  - If the discovered cultural resource or tribal cultural resource can be avoided, the construction contractor(s), will install protective fencing outside the site boundary, including a 100-foot buffer area, before construction restarts. The boundary of a cultural resource or a tribal cultural resource will be determined in consultation with interested culturally affiliated Native American tribes. Use of temporary and permanent forms of protective fencing will be determined in consultation with Native American representatives from interested culturally affiliated Native American tribes.
  - The construction contractor(s) will maintain the protective fencing throughout construction to avoid the site during all remaining phases of construction. The area will be demarcated as an "Environmentally Sensitive Area".

If a cultural resource or a tribal cultural resource cannot be avoided, the following performance standard shall be met prior to continuance of construction and associated activities that may result in damage to or destruction of cultural resources or tribal cultural resources:

- Each resource will be evaluated for California Register of Historical Resources (CRHR) eligibility through application of established eligibility criteria (California Code of Regulations 15064.636), in consultation with consulting Native American Tribes, as applicable.

If a cultural resource or a tribal cultural resource is determined to be eligible for listing in the CRHR, the City will avoid damaging effects to the resource in accordance with California PRC Section 21084.3, if feasible. The City shall coordinate the investigation of the find with a qualified archaeologist (meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology) approved by the City and with interested culturally affiliated Native American tribes that respond to the City's invitation. As part of the site investigation and resource assessment, the City and the archaeologist shall consult with interested culturally affiliated Native American tribes to assess the significance of the find, make recommendations for further evaluation and treatment as necessary and provide proper management recommendations should potential impacts to the resources be determined by the City to be significant. A written report detailing the site assessment, coordination activities, and management recommendations shall be provided to the City representative by the qualified archaeologist. These recommendations will be documented in the project record. For any recommendations made by interested culturally

affiliated Native American tribes that are not implemented, a justification for why the recommendation was not followed will be provided in the project record.

Native American representatives from interested culturally affiliated Native American Tribes and the City representative will also consult to develop measures for long-term management of any discovered tribal cultural resources. Consultation will be limited to actions consistent with the jurisdiction of the City and taking into account ownership of the subject property. To the extent that the City has jurisdiction, routine operation and maintenance within tribal cultural resources retaining tribal cultural integrity shall be consistent with the avoidance and minimization standards identified in this mitigation measure.

If the City determines that the project may cause a significant impact to a tribal cultural resource, and measures are not otherwise identified in the consultation process, the following are examples of mitigation capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to the resource. These measures may be considered to avoid or minimize significant adverse impacts and constitute the standard by which an impact conclusion of less-than significant may be reached:

- Avoid and preserve resources in place, including, but not limited to, planning construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- Treat the resource with culturally appropriate dignity taking into account the Tribal cultural values and meaning of the resource, including, but not limited to, the following:
  - Protect the cultural character and integrity of the resource.
  - Protect the traditional use of the resource.
  - Protect the confidentiality of the resource.
- Establish permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or using the resources or places.
- Protect the resource.

### MITIGATION MEASURE TCR-3: IMPLEMENT PROCEDURES IN THE EVENT OF THE INADVERTENT DISCOVERY OF HUMAN REMAINS

If an inadvertent discovery of human remains is made at any time during Project-related construction activities or Project planning, the following performance standards shall be met prior to implementing or continuing actions such as construction, which may result in damage to or destruction of human remains. In accordance with the California Health and Safety Code (HSC), if human remains are encountered during ground-disturbing activities, the City shall immediately halt potentially damaging excavation in the area of the remains and notify the Sacramento County Coroner and a professional archaeologist to determine the nature of the remains. The Coroner is

required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (HSC Section 7050.5[b]).

If the human remains are of historic age and are determined to be not of Native American origin, the City will follow the provisions of the HSC Section 7000 (et seq.) regarding the disinterment and removal of non-Native American human remains.

If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (HSC Section 7050[c]). After the Coroner's findings have been made, the archaeologist and the NAHC-designated Most Likely Descendant (MLD), in consultation with the landowner, shall determine the ultimate treatment and disposition of the remains. The responsibilities of the City for acting upon notification of a discovery of Native American human remains are identified in California PRC Section 5097.9 et seq.

### 3.13.4 CUMULATIVE IMPACT ANALYSIS

The City of Sacramento 2035 General Plan Master EIR is incorporated by reference and as a City Project, the proposed Project adheres to the City's policies. The 2035 General Plan Master EIR finds the change in significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5 to be a significant and unavoidable impact because it may be infeasible to protect historic and archaeological resources from damage or destruction. This impact is thus potentially a significant and unavoidable cumulative impact. However, the proposed Project's contribution to this impact would be limited, because the small footprint of Project sites combined with **Mitigation Measures TCR-1** through **TCR-3** limits the Project's potential for impact. This slight impact would not be cumulatively considerable because resources would be identified and preserved or avoided. Therefore, the Project would have a less than significant cumulative impact to tribal resources.

### 3.13.5 REFERENCES

Basin Research Associates, 2020. Archaeological Literature Review – Initial Screening for City of Sacramento Well Replacement Program - 38 Water Wells, Sacramento County. August 25, 2020.

Basin Research Associates, 2022. Cultural Resources Assessment Report for the City of Sacramento Groundwater Master Plan Well Replacement Program – Sacramento, Sacramento County. September, 2022.

### 3.13.6 TRIBAL CULTURAL RESOURCES ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
CCR	California Code of Regulations
CEQA	California Environmental Quality Act

HSC	California Health and Safety Code
CHRIS	California Historical Resources Information System
PRC	California Public Resources Code
CRHR	California Register of Historical Resources
CFR	Code of Federal Regulations
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
RD	Reclamation District
SRTCL	Sacramento River Tribal Cultural Landscape
UAIC	United Auburn Indian Community of the Auburn Rancheria
WEAP	Worker Environmental Awareness Program

## CHAPTER 4. ALTERNATIVES

In accordance with California Environmental Quality Act (CEQA) Guidelines Section 15126.6, this chapter of the Environmental Impact Report (EIR) provides the City of Sacramento's (City's) consideration of reasonable alternatives to the Project. The following sections present the alternatives analysis that the City used to evaluate alternatives compared to the proposed Project and to select the environmentally superior action alternative. The following sections discuss the methodology and analysis used by the City in selecting alternatives and an evaluation of the alternatives for their potential to reduce one or more significant impact of the Project, and finally identify an environmentally superior alternative.

### 4.1 ALTERNATIVE ANALYSIS

According to the CEQA Guidelines (14 California Code of Regulations [CCR] Section 15126.6[a]), the discussion of alternatives, "shall describe a range of reasonable alternatives to a project, or its location, that would feasibly obtain most or all of the basic objectives of the project but would avoid or substantially lessening the significant effects of the project." It is the responsibility of the Lead Agency to select and publicly disclose the reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason. Although, an EIR must contain a discussion of "potentially feasible" alternatives, the ultimate determination whether an alternative is feasible or infeasible is made by the Lead Agency's decision-making body (Public Resources Code [PRC] Section 21081[a][3]).

The CEQA Guidelines indicate that the range of alternatives included in this discussion should be sufficient to allow decision-makers a reasoned choice between alternatives and the proposed project. In determining what alternatives should be considered in the EIR, it is necessary to acknowledge the goals and objectives of a project, the project's significant effects, and unique project considerations, as well as the feasibility of the alternatives. This section outlines the alternative identification selection process and evaluates feasible alternatives following the CEQA Guidelines requirements.

#### 4.1.1 DEVELOPMENT OF REASONABLE RANGE OF ALTERNATIVES

CEQA requires that an EIR describe and evaluate a range of reasonable alternatives to a project or to the location of a project that would feasibly attain most of the basic project objectives and avoid or substantially lessen significant project impacts (CEQA Guidelines section 15126.6). The alternatives to the proposed Project considered in this Draft EIR were developed based on information gathered during the development of the proposed Project and during the EIR scoping process.

In developing the proposed Project, the City has considered a range of potential actions that could meet the project objectives. Comments received during scoping were considered but no alternatives were suggested.

### 4.1.2 METHODS USED TO SCREEN ALTERNATIVES

Potential alternatives were screened based on their ability to feasibly attain most of the basic Project objectives feasibility and reduce or eliminate any significant environmental impacts of the proposed Project.

- **Meeting Project Objectives.** The Project objectives are listed in *Section 2.2 Project Description*. The CEQA Guidelines state that alternatives must feasibly attain most of the basic objectives of the project (CEQA Guidelines section 15126.6). Alternatives that did not meet the majority of the objectives were screened out and not carried forward for further evaluation in the EIR.
- **Feasibility.** Alternatives that are not “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors,” (per Public Resource Code Section 21061.1), were not carried forward for further evaluation in the EIR.
- **Avoiding or lessening any potentially adverse environmental effect of the Proposed Project.** Consistent with the CEQA Guidelines (Section 15126.6), alternatives should avoid or substantially lessen one or more of the significant environmental effects of the proposed Project. Alternatives that would not lessen or avoid a potentially significant environmental impact, were not carried forward for detailed evaluation in the EIR.

### 4.1.3 PROJECT ALTERNATIVES

As a result of the alternatives development and screening process described above, in addition to the No Project Alternative, one alternative, the Minimum Use Alternative, was identified as potentially feasible alternative to the proposed Project for further evaluation in the EIR:

This alternative is described below, along with a comparison of the impacts of the alternative to the impacts of the proposed Project. The alternative was also evaluated for its ability to achieve the Project objectives (initially presented in Section 2.2).

## 4.2 NO PROJECT ALTERNATIVE

### 4.2.1 DESCRIPTION OF ALTERNATIVE

CEQA Guidelines Section 15126.6(e)(1) requires that the No Project Alternative be described and analyzed, “to allow decision makers to compare the impacts of approving the project with the impacts of not approving the project.” The No Project Alternative analysis is required to discuss “the existing conditions at the time the notice of preparation is published... as well as what would

be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services” (Section 15126.6(e)(2)).

As directed by the CEQA Guidelines Section 15126.6(e)(3)(B), when a project consists of a development project on identifiable property, the “no project” alternative is the circumstance under which the project does not proceed. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, the “no project” consequence should be discussed.

Under the No Project Alternative, the City’s Groundwater Master Plan would not be implemented. The City’s plans for reaching groundwater sustainability and maintaining the redundant water supply to withstand drought and variable climate conditions would not be met in the future. The existing groundwater wells would continue to operate in the same manner as at the time the Notice of Preparation (NOP) was published, other than what could be reasonably expected to occur in the foreseeable future if the proposed Project were not approved, based on current plans and consistent with available infrastructure.

If the proposed Project is not approved, the proposed construction activities and the resulting impacts associated with the construction and operation of the proposed well sites would not occur. These include temporary impacts on traffic, air quality, noise, greenhouse gases, and sensitive wildlife species.

Operations of the City’s groundwater well network would continue, similar to current operations, however without replacements, more wells would be taken out of service as they reach the end of their useful life, and any remaining operating wells would likely require increased maintenance and improvements for the short-term to continue to function. Without well replacements, the aging well infrastructure could pose high risk of failure and affect the City’s water supply reliability over the long-term.

#### ***4.2.2 ABILITY TO MEET PROJECT OBJECTIVES***

If the proposed Project is not approved, progress to replace and maintain the City’s groundwater well network would be impacted. The City would be in jeopardy of failing to meet drinking water demands as the groundwater well network would remain operating under existing conditions and well failure would start to occur, potentially resulting in water shortages. This would mean developers and others may need to explore other means to provide water supply (e.g., other groundwater suppliers or other surface water means). Implementation of the No Project Alternative would not provide the benefits of improving and creating water supply reliability for the City. Under the No Project Alternative none of the existing wells near the end of their useful life would be replaced and therefore the City would lose function of groundwater wells. The City would be unable to meet the future growth needs projected within the 2035 General Plan. The No Project Alternative would not meet any of the stated Project objectives and would not address the City’s need for a reliable water supply.

Although no direct environmental impacts would occur from the No Project Alternative, additional impacts could result from the existing system reaching capacity, aging, or conflicting with the City of Sacramento 2035 General Plan. With aging infrastructure and wells near the end of their useful life, the City's supply capacity will decrease which would not allow the City to expand populations or accommodate future growth identified in the 2035 General Plan in any way; there would even be difficulty meeting current population and demand.

#### *4.2.3 NO PROJECT IMPACT ANALYSIS*

#### *4.2.4 IMPACTS IDENTIFIED AS LESS SEVERE THAN THE PROPOSED PROJECT*

- **Aesthetics; air quality; biological resources; cultural resources; energy; greenhouse gases; geology and soils; hazards and hazardous materials; recreation; transportation; and tribal cultural resources:** Under the No Project Alternative construction of the proposed Project would not occur and the existing wells would remain operating under existing conditions.
- **Hydrology and water quality (groundwater):** Under the No Project Alternative existing wells would remain operating under existing conditions and continue to withdrawal existing groundwater volumes. However, existing wells would become decommissioned over time as they near the end of their useful life which would decrease groundwater extractions or exacerbate operations in other wells.

#### *4.2.5 IMPACTS IDENTIFIED AS BEING THE SAME OR SIMILAR TO THE PROPOSED PROJECT*

There are no impacts to resource areas under the No Project Alternative that would be identified as being the same or similar to the proposed Project.

#### *4.2.6 IMPACTS IDENTIFIED AS BEING MORE SEVERE THAN THE PROPOSED PROJECT*

- **Hydrology and water quality (surface water):** The No Project Alternative would continue operation of the existing wells under existing conditions. Over time existing wells will reach their end of life and will need to be decommissioned which will increase strain and City's reliance on surface water supply.

### **4.3 ACTION ALTERNATIVE CONSIDERED**

The City's methodology for identifying potential action alternatives included consideration of the following: 2017 Groundwater Master Plan (GWMP), North and South American Subbasin Groundwater Sustainability Plans (GSPs) (2021), CEQA Notice of Preparation scoping public and

agency written comments (Chapter 1), and professional judgement for feasible alternatives that would reduce environmental impacts while still meeting most or all of the Project objectives.

The GWMP and North and South American Subbasin GSPs were developed through multiple iterations and refinements. The GWMP assessed if any additional groundwater infrastructure would be required to optimize groundwater use in the context of local water supply reliability in the future. The North and South American Subbasin GSPs determined sustainable management criteria for each subbasin and how implemented projects and management actions would improve sustainability of the subbasin.

One action alternative, the Minimum Use Alternative, was identified by the City as a potentially reasonable alternative to further evaluate for its ability to meet Project objectives and assess its feasibility. If it was found to be feasible and meet most of the Project objectives, it was then considered for its ability to reduce one or more significant impacts associated with the Project. The following subsection provides a brief description of the Minimum Use Alternative.

## **4.4 MINIMUM USE ALTERNATIVE**

### *4.4.1 DESCRIPTION OF ALTERNATIVE*

Under the Minimum Use Alternative, the Minimum Groundwater Use Scenario modeled in the City's 2017 Groundwater Master Plan would be implemented. The Minimum Groundwater Use Scenario represents a continuation of current pumping rates with existing active wells replaced as they come to the end of their service life. Overall pumping capacity for this Alternative would be approximately the same as the future conditions baseline (i.e., existing pumping capacity with year 2040 projected supply demand). Over time there would be modifications to both pumping locations and amounts.

The Minimum Use Alternative would install fewer replacement wells, only 24, as compared to 38 of the proposed Project, but would maintain the same or a potentially greater level of groundwater withdrawal compared to future conditions baseline. However, this would minimize the number of sites where construction and operational impacts would occur.

The Groundwater Master Plan determined groundwater extractions would have a 0.032 million gallons per day (MGD) pumping capacity under the Minimum Groundwater Use Scenario, compared to 0.051 MGD under the proposed Project. The Minimum Use Alternative would have fewer overall changes to the groundwater subbasins, with respect to groundwater elevations, storage, stream seepage, etc., as compared to the proposed Project. In general, the Minimum Use Alternative would have the same environmental impacts as the proposed Project but at a smaller scale since the Minimum Use Alternative would replace fewer existing wells and pumping capacity would be less.

#### *4.4.2 ABILITY TO MEET PROJECT OBJECTIVES*

If the Minimum Use Alternative were to be implemented, progress to replace and maintain the City's groundwater well network would be impacted. The City would be able to replace some of the existing wells that are near the end of their useful life; however, not enough wells would be replaced to be able to meet projected drinking water demands, as well failures would occur and/or wells would be shut down due to water quality concerns, which could potentially result in water shortages in the long term (i.e., loss of pumping redundancy in the system). This would mean developers and others may need to explore other means to provide water supply. Implementation of the Minimum Use Alternative would provide some of the benefits of improving and creating water supply reliability and conjunctive use opportunities for the City. Under the Minimum Use Alternative, some of the existing wells near the end of their useful life would be replaced, which would help provide some groundwater reliability and diversification of the City's water supply portfolio. Therefore, the City would be able to meet supply in the short-term, but may not be able to meet future growth needs projected within the 2035 General Plan and modeled 2040 water supply demand projections. The Minimum Use Alternative would not meet the City's need for long-term water supply reliability.

#### *4.4.3 MINIMUM USE ALTERNATIVE IMPACT ANALYSIS*

##### *4.4.4 IMPACTS IDENTIFIED AS BEING THE SAME OR SIMILAR TO THE PROPOSED PROJECT*

- **Aesthetics; biological resources; cultural resources; geology and soils; hazards and hazardous materials; recreation; transportation; and tribal cultural resources:** Under the Minimum Use Alternative construction impacts for the proposed Project would occur at fewer well sites.

##### *4.4.5 IMPACTS IDENTIFIED AS LESS SEVERE THAN THE PROPOSED PROJECT*

- **Air quality; energy; greenhouse gases; hydrology and water quality (groundwater):** Under the Minimum Use Alternative construction for the proposed Project would occur at fewer well sites which would decrease the amount of construction that would need to occur over the lifetime of the proposed Project and decrease the amount of working wells over time.

##### *4.4.6 IMPACTS IDENTIFIED AS BEING MORE SEVERE THAN THE PROPOSED PROJECT*

- **Hydrology and water quality (surface water):** The Minimum Use Alternative would replace some of the existing wells that are near the end of their useful life. In the future there would not be enough replaced wells to continue groundwater extractions at the same

capacity as existing conditions. The City would need to use more surface water to compensate for less groundwater supply capacity to meet future demand needs.

## 4.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The proposed Project has no significant and unavoidable impacts, and therefore would have no impacts that need to be lessened from significant and unavoidable levels by an alternative.

**Table 4.5-1** provides a comparison of the proposed Project, No Project alternative, and Minimum Use alternative based on their level of impacts as noted:

- NI = No Impact
- LTS = Less than Significant
- PS = Potentially Significant
- S = Significant
- LSM = Less than Significant with Mitigation
- SU = Significant and Unavoidable

None of the three alternatives have significant and unavoidable impacts. The No Project alternative would avoid impacts at the proposed Project sites including impacts on aesthetics, noise, GHG, energy, traffic, biological resources, and cultural resources. However, the No Project alternative would generate greater hydrology and water supply impacts since the City would not be able to meet water supply demand needs. The No Project alternative would not replace any of the existing groundwater wells that are near the end of their useful life. The Minimum Use alternative would have less impacts on aesthetics, noise, GHG, energy, traffic, biological resources, and cultural and tribal cultural resources since there would be fewer Project sites; however, the impacts at each site would be the same as the proposed Project, just at fewer sites. The Minimum Use alternative would generate greater hydrology and water supply impacts than the proposed Project yet less impacts than the No Project alternative since the City would only be able to replace some of the existing groundwater wells that are near the end of their useful life.

Neither the No Project alternative nor the Minimum Use alternative meets the operational objectives of the proposed Project. The No Project alternative would not improve the City's ability to increase water supply reliability through groundwater use. The Minimum Use alternative would be more efficient than the City's existing groundwater supply since some of the existing wells near the end of their useful life would be replaced which would improve groundwater supply reliability. However, the Minimum Use alternative would not be as efficient as the proposed Project.

Based on the comparison of alternative impacts, the proposed Project is the environmentally superior alternative.

**Table 4.5-1: Comparison of Alternatives**

Impact Statement	Significance		
	Proposed Project	No Project Alternative	Minimum Use Alternative
<b>Aesthetics</b>			
AES-1: In an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.	LSM	NI	LSM
AES-2: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	LSM	NI	LTS
Have a substantial adverse effect on a scenic vista.	NI	NI	NI
Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	NI	NI	NI
<b>Air Quality</b>			
AIR-1: Conflict with or obstruct implementation of the applicable air quality plan.	LSM	LTS	LSM
AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	LSM	LTS	LSM
AIR-3: Expose sensitive receptors to substantial pollutant concentrations.	LTS	LTS	LTS
<b>Biological Resources</b>			
BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the CDFW or USFWS.	LSM	NI	LSM
BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.	LSM	NI	LSM
BIO-3: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	LSM	NI	LSM
BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.	LTS	NI	LTS
BIO-5: Conflict with any local policies or ordinances protection biological resources, such as a tree preservation policy or ordinance.	LSM	LTS	LSM
<b>Cultural Resources</b>			
CUL-1: Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5.	LSM	NI	LSM

Impact Statement	Significance		
	Proposed Project	No Project Alternative	Minimum Use Alternative
CUL-2: Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5.	LSM	NI	LSM
CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries.	LSM	NI	LSM
<b>Energy</b>			
ENE-1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation	LTS	LTS	LTS
ENE-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	LTS	LTS	LTS
<b>Geology and Soils</b>			
GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic groundshaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides.	LTS	LTS	LTS
GEO-2: Result in substantial soil erosion or the loss of topsoil.	LTS	LTS	LTS
GEO-3: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	LTS	LTS	LTS
GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	LTS	LTS	LTS
GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geographic feature.	LSM	NI	LSM
<b>Greenhouse Gas Emissions</b>			
GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	LSM	LTS	LSM
GHG-2: Conflict with a plan, policy, or regulation adopted for the purpose of reducing GHG emissions.	LSM	LTS	LSM
<b>Hazards and Hazardous Materials</b>			
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	LTS	LTS	LTS
HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	LTS	LTS	LTS
HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	LSM	LTS	LSM

Impact Statement	Significance		
	Proposed Project	No Project Alternative	Minimum Use Alternative
HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would it create a significant hazard to the public or the environment.	LSM	NI	LSM
HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LSM	LTS	LSM
<b>Hydrology and Water Quality</b>			
HYD-1: Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.	LTS	LTS	LTS
HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.	LTS	LTS	LTS
HYD-3: 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 off site, 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.	LTS	NI	LTS
HYD-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation.	LTS	LTS	LTS
HYD-5: Conflict with or obstruct implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan	LTS	SU	SU
<b>Noise and Vibration</b>			
NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	LSM	LTS	LSM
NOI-2: Generate excessive groundborne vibration or groundborne noise levels.	LTS	NI	LTS
<b>Recreation</b>			
REC-1: Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LTS	NI	LTS
<b>Transportation</b>			
TRA-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	LTS	LTS	LTS

Impact Statement	Significance		
	Proposed Project	No Project Alternative	Minimum Use Alternative
TRA-2: Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	LTS	LTS	LTS
TRA-3: Substantially increase hazards due to a geometric design feature or incompatible uses.	LSM	NI	LSM
TRA-4: Result in inadequate emergency access.	LSM	LTS	LSM
<b>Tribal Cultural Resources</b>			
<p>TRI-1: Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC, Section 21074, as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p> <p>Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC, Section 5020.1(k), or</p> <p>A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC, Section 5024.1(c). In applying the criteria set forth in PRC, Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.</p>	LSM	NI	LSM

Notes: NI= No Impact, LTS = Less than Significant, PS = Potentially Significant, S = Significant; LSM = Less than Significant with Mitigation, SU = Significant and Unavoidable

## 4.6 REFERENCES

City of Sacramento. 2017. Groundwater Master Plan.

Sacramento Groundwater Authority GSA, Reclamation District 1001 GSA, South Sutter Water District GSA, Sutter County GSA, and West Placer GSA (SGAGSA et al.). 2021. North American Subbasin Groundwater Sustainability Plan. Final.

Northern Delta Groundwater Sustainability Agency, Omochumne – Hartnell Water District, Reclamation District 551, Sacramento Central Groundwater Authority, Sacramento County, and Sloughouse Resource Conservation District (NDGSA et al.). 2021. South American Subbasin Groundwater Sustainability Plan. Final.

## **CHAPTER 5. OTHER CEQA CONSIDERATIONS**

### **5.1 SIGNIFICANT AND UNAVOIDABLE IMPACTS**

If the City decides to move forward with implementation of the proposed Project, the City would be required to adopt Findings and, if necessary, prepare a Statement of Overriding Considerations for any unavoidable adverse impacts as part of the approval of the Project. However, no impacts were determined to be significant and unavoidable. Therefore, if the City decides to move forward with implementation of the proposed Project, the City would not be required to prepare a Statement of Overriding Considerations.

### **5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES**

Implementation of the proposed Project would require irreversible commitment of natural resources including groundwater; land; construction materials; labor and energy required for construction, operation, and maintenance. Commitment of non-renewable natural resources used in construction would include lumber, petroleum products, steel, and others. Commitment of energy resources for construction would include fuel oil, natural gas, and gasoline for heavy machinery. The Project would permanently convert existing vacant, or park/open space land for well siting and facilities. Operation of the proposed Project would result in further commitment of energy resources. However, the consumption of energy for construction and operation would not be inefficient, wasteful, or unnecessary. The proposed Project would increase the reliability of water supply for the City's service area and its wholesalers.

### **5.3 GROWTH INDUCING IMPACTS**

CEQA requires the Lead Agency to evaluate whether a proposed Program will directly or indirectly induce growth of population, economic development, or housing construction. Specifically, CEQA Guidelines Section 15126.2(d) states the need to evaluate the potential for a proposed Program to "foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas)."

Directly induced growth is associated with residential or commercial development projects that would result in population increase or an increase in the number of employees. Indirectly induced growth is associated with reducing or removing barriers to growth or creating a condition that encourages additional population or economic activity. Both types of induced growth result in population increase, which "may tax community service facilities, requiring construction of new facilities that could cause significant environmental effects" (CEQA Guidelines Section 15125.2[d]). Other potential environmental impacts related to growth included increased traffic, air emissions,

and noise; degradation of water quality; loss of sensitive biological and cultural resources; increased demand on public services and infrastructure; and changes in land use and conversion of agricultural or open space to accommodate development.

Under CEQA, growth inducement is neither considered necessarily detrimental, beneficial, nor of little significance to the environment.

Projects are considered to have growth-inducing implications when economic, housing, or population growth occurs directly or indirectly. Local land use plans, such as the City of Sacramento 2035 General Plan, provides development patterns and growth policies that allow for planned urban development and expansion (i.e., residential, commercial, and industrial uses) supported by adequate urban public services (e.g., water supply, wastewater treatment, solid waste service disposal, police and fire services). A project that would induce unplanned growth and conflict with the local land use plans could indirectly cause adverse environmental impacts not previously envisioned. Therefore, to assess whether a project has the potential to induce growth and result in adverse secondary effects beyond what is anticipated by the local jurisdiction, it is important to assess the degree to which the growth associated with a project would or would not be consistent with the applicable land use plan.

Construction of the proposed Project would not directly induce population growth, as no new residential or commercial development projects would be served by the Project. The proposed Project does not include the construction of any new homes or business in the City of Sacramento and therefore would not directly induce growth.

The construction labor force is expected to come from the local area and is not expected to increase the City of Sacramento's population. No additional employees would be needed to operate or maintain the proposed Project sites. The City would use existing staff for operation and maintenance of well sites. Therefore, construction and operation of the proposed Project would not have an effect on planned growth in the Project area.

The proposed Project would indirectly induce growth by removing or reducing the barriers to growth through improving the City's water supply reliability to serve the previously planned population growth. Up to 38 wells would be replaced within the City of Sacramento which would allow the City to increase groundwater pumping and conjunctive use opportunities, and adjust surface and groundwater supplies based on availability. The proposed Project has the potential to increase existing potable water supplies, and thus indirectly accommodate additional development within the City. Therefore, the Project is growth accommodating; however, this accommodation would be done consistent with the City 2035 General Plan and the regional Groundwater Sustainability Plans.

## CHAPTER 6. CEQA PREPARERS

As required by the California Environmental Quality Act (CEQA), this chapter identifies the preparers of this Environmental Impact Report (EIR).

### 6.1 PROJECT SPONSOR/LEAD AGENCY

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## **APPENDIX A. NOTICE OF PREPARATION AND SCOPING REPORT**

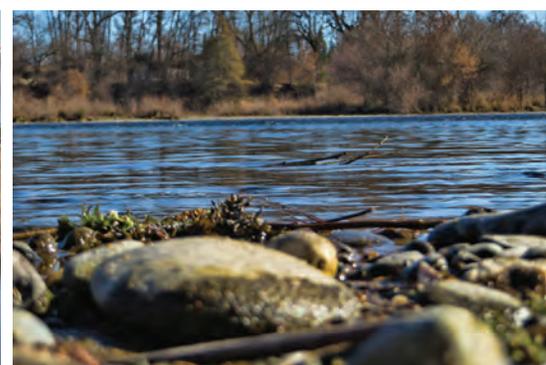
## **APPENDIX B. PROPOSED WELL SITE LOCATIONS**

## APPENDIX C. CalEEMod OUTPUTS

## **APPENDIX D. BIOLOGICAL RESOURCES TECHNICAL REPORT**

## **APPENDIX E. GROUNDWATER MODEL TECHNICAL MEMO**

## **APPENDIX F. RCNM NOISE CALCULATION SHEETS**



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