



# Long Beach Water

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## New Wells Alamitos 9A and 14

**BOR-DO-20-F002**

**WaterSMART: Drought Resiliency Project Grants for  
FY2021**

**Funding Group II**

***Prepared For:***

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*August 5th, 2020*

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## SECTION 1: TECHNICAL PROPOSAL

### A. Executive Summary

**Date:** August 5<sup>th</sup>, 2020

**City:** Long Beach

**County:** Los Angeles County

**State:** California

**Applicant Name:** Long Beach Water Department

**Project Length of Time:** 36 months

**Estimated Completion Date:** October 2023

**Located on a Federal Facility:** No

The Long Beach Water Department (LBWD) currently receives its potable water supply from two sources: imported water through Metropolitan Water District of Southern California (MWD), and groundwater through its wells located in the Central Groundwater Basin. In order to improve the reliability of its water supplies to the residents and businesses within the City of Long Beach (City), LBWD proposes to construct two new production wells for the Central Groundwater Basin, which underlies the northeast portion of the City. Design is currently in progress and funding will accomplish various project activities involving well construction, pipeline installation and well equipping. The proposed project is expected to take approximately 36 months to construct, with an estimated completion date of September 2023.

This project will replace three aging, low producing wells and to build long-term resilience to drought and reduce the need for emergency response actions by providing the following benefits:

- Implementing a long-term strategy, support and supplement to the City's increasing water demands by increasing production by approximately **7,937 acre-feet per year (AFY)**
- Decreasing LBWD's reliance on more expensive imported water from MWD, who supplies water to 26 member-agencies, including more than 300 cities.
- Helping MWD to decrease its dependence on the Bureau of Reclamation (Reclamation) water via the Colorado River Aqueduct (CRA).
- Supporting minority and disadvantaged communities by allowing LBWD to use a local and reliable resource, which has a lower cost, thereby allowing these residents to enjoy lower cost water bills.
- Supporting the City's [Climate Resiliency Assessment Report](#) goals by providing locally supplied resources, which have a lower carbon footprint and decrease greenhouse gases.

### B. Project Location

The Alamitos Wells 9A (ALA 9A) and 14 (ALA 14) project area is located in the City of Long Beach, California, which is directly adjacent to the City of Carson on the west. Well ALA 9A is located inside Stearns Champions Park (Stearns Park) at the southeast corner of E 23rd street and E De Oro Way. The ALA 9A well site latitude is (33°47'58.2") and longitude is (118°08'17.8"W) as shown in Figure 1.

## Technical Proposal

Well ALA 14 will be located at the northwestern corner of the Stearns Park west of the parking lot driveway located off E 23rd Street. Stearns Park is City owned and is located at 4520 E 23rd St in the City of Long Beach. The ALA 14 well site latitude is {33°47'58.7"N} and longitude is {118°08'25.5"W} as shown in Figure 1.



### C. Technical Project Description

This application proposes construction of two new wells (ALA 9A and ALA14) and destruction of three existing aging wells: Alamitos 9 (ALA 9), Commission 13 (COM 13), and Annex 201 (ANX 201). The three wells were identified for deconstruction are due to age and low productivity: ALA 9 (located in the Stearns Park) is 97 years old and is in considerably below its discharge capacity at 129 AFY. COM 13 (located 3414 Studebaker Road) is 58 years old and has been inactive since 2011 so its “lost” capacity will not be considered. ANX 201 (located at Spring Street and Ladoga Avenue) is 78 years old and has been inactive since 2011 so its “lost” capacity will not be considered.

The proposed well locations are within 65 feet of the existing collection main network and meet all other project constraints. Water quality at a depth of 400-800 feet below ground surface is expected to meet primary and secondary maximum contaminant level (MCLs) with chloramine disinfection.

The Alamitos Wells ALA9A & ALA14 project consists of the following components:

- 17.5-inch pilot holes will be drilled to a depth of 880 feet at the project site to develop the final design for the wells. The pilot holes will be drilled utilizing the reverse circulation rotary drilling method. Prior to drilling, a 36-inch outside diameter conductor casing will be installed within a 48-inch diameter borehole to a minimum depth of 50 feet. The conductor casing will be sealed with cement to satisfy Los Angeles County sanitary seal requirements.
- The wells will be drilled to a depth of 860 feet with a diameter of 34 inches down to a depth of 410 feet and a 28-inch diameter for the lower portion down to the bottom of the

wells. The well casings and screens will be a minimum 18-inch inside diameter (ID) throughout the entire length. The wall thickness will be 3/8-inch for the upper blank section (+2 to 490 feet bgs) to allow for greater resistance to hydrostatic forces during installation of deep annular cement seals. The wall thickness for the remaining sections of blank well casings and screens (i.e., 490 to 860 feet bgs) is 5/16-inch. Well pumps will be driven by a 350 to 400 horse-power (HP) electric motors. Please see Appendix 5 for well diagram.

- Connect the wells to LBWD's collection main system via new piping to deliver well water to the LBWD's treatment plant.

The overall construction of the ALA9A & ALA14 Project will involve layout of the pump, motor, and tie-in connection to the existing collection main system. The design includes automation of the facility for remote operation from the LBWD Treatment Plant through radio communication via Supervisory Control and Data Acquisition (SCADA). To house and temperature control the equipment, the design will include provisions for access control for well site (i.e. chain link fence). In addition, the project has designs for new conveyance lines connecting the two new wells to LBWD's well main collection lines including pump to waste line.

#### *D. Performance Measures*

##### *Performance Measure for Quantifying Benefits*

The LBWD proposes to use two performance measures to quantify the proposed project's benefits: 1) Total Groundwater Produced; and 2) Total Groundwater Served to Customers.

According to the 2017 Well Rehabilitation Master Plan and following year data, during water years (WY) 2012 through 2018, the overall production capacity of LBWD's well field ranged from approximately 21,648 to 32,505 AFY. Taking the individual water production for each of the eight years, the resulting average well water production is 28,413 AFY per WY. LBWD will use this eight-year average as the baseline, which includes only groundwater from existing non-Project wells. During project construction, LBWD will gather baseline data and develop a report template to submit with quarterly Program Performance Reports. The first report will include methodology for collecting data and a project status. Following the first quarter of well production, the Program Performance Reports will commence with data to show both **Total Groundwater Produced** from all LBWD groundwater wells, and **Total Groundwater Served to Customers**. We expect to show an increase in total groundwater produced and served to customers with this project.

- 1) **Total Groundwater Produced:** The five-year average well water production, as indicated above, is 28,413 AFY per WY. LBWD will measure the total amount of groundwater produced by all LBWD wells both before and after project construction is complete and the wells are in use. LBWD will continue to gather incremental data each quarter during the reporting period to be published in our quarterly Program Performance Reports to the Bureau of Reclamation (BOR or "Reclamation").

- 2) **Total Groundwater Served to Customers:** LBWD will utilize the five-year average well water production, which, as indicated above, is 28,413 AFY per WY to measure total amount of groundwater served to customers before project implementation, and measure the total amount of groundwater served post construction during each quarter of the grant performance period. LBWD will include this data with our quarterly Program Performance Reports to the BOR. Reporting will continue via the Water Replenishment District of Southern California (WRD) and its annual Regional Groundwater Management Report, thus information regarding the viability of the project will be continually documented throughout its useful life.

LBWD has been awarded several grants from Reclamation and is therefore very familiar with all Reclamation's requirements and procedures to successfully implementing a project.

## ***E. Evaluation Criteria***

### **E.1 Evaluation Criterion A — Project Benefits**

*How will the project build long-term resilience to drought? How many years will the project continue to provide benefits?* LBWD is responsible for managing all water supply within the City of Long Beach and covers a water service area of over 50 square miles with several disadvantaged communities. According to the City's 2015 Urban Water Management Plan, LBWD owns, operates, and maintains 24 active groundwater wells; 923 miles of water mains; 6,501 fire hydrants; 33 storage tanks that hold 3.3 million gallons (MG) of potable water; one (5 pump) booster pump station located at 32<sup>nd</sup> Street and one (11 pump) pump station located at the treatment plant; as well as 750 miles of sanitary sewer lines. This entire infrastructure is used to provide water service to approximately 89,000 active customer accounts.

LBWD currently receives its potable water supply from two sources: imported water through MWD, and groundwater from the Central Groundwater Basin, which underlies the northwestern portion of the City. MWD imports water to Southern California from the Colorado River and runoff from the western slopes of the northern Sierra Nevada Mountains.

There have also been several significant droughts and water shortages in Southern California since the 1970's. LBWD has considered the potential impacts climate change may have on the quantity of imported water that will have available in the future. In 2015, LBWD purchased 43% of the City's water supply from MWD and supplied 47% of the City's water from groundwater in the Central Groundwater Basin. The remaining 10% of water used is recycled.

In the face of aging infrastructure, recurring droughts and growing future demand, LBWD is continually engaged in extensive planning efforts and construction activities on its water system. These planning efforts, including the 2015 Urban Water Management Plan, 2017 Well Rehabilitation Master Plan and the 2019 Collection Main and New Well Site Study assess existing infrastructure, estimates future demand, and proposes and prioritizes capital projects. As a result, rehabilitation projects were completed for ten production wells from 2013 through early 2018, and four others are in progress.



In summary, LBWD currently has 24 ground water production wells in operation. These wells produce less than LBWD's allocated groundwater capacity of 32,693 AFY that is conveyed to the Ground Water Treatment Plant (GWTP). To replace the unused water rights capacity in lieu of purchasing imported water, LBWD has planned the addition of groundwater production wells Alamitos 9A & Alamitos 14 to reduce the City's reliance on MWD's water supply.

The proposed project has an expected life at least 50 years and will have a net production of 7,937AFY of groundwater available for potable use.

***Will the project make additional water supplies available?*** Yes. The project will make additional water supplies available to both MWD and Reclamation.

***If so, what is the estimated quantity of additional supply the project will provide and how was this estimate calculated? Provide this quantity in acre-feet per year as the average annual benefit over ten years.*** According to the Collection Main and New Well Site Study, measured aquifer yields for existing wells in the Central Basin ranged between 1,200 to 4,300 gallons per minute with an average of approximately 2,960 gpm. Based on the measured pumping rates for the wells in the Central Basin and considering that ALA 9A & ALA 14 are new and will be equipped with modern equipment, a conservative pumping rate of 2,500 gpm for each well is used. This results in 4,033 AFY for each well, producing a total of 8,066 AFY for the two wells. Since the two new wells are replacements for one existing aging well and two inactive wells, the production of the one existing aging well is subtracted from the 8,066 AFY for a total net production of **7,937 AFY** for the two new wells, equivalent to 79,370 AF for 10 years.

***What percentage of the total water supply does the additional water supply represent? How was this estimate calculated?*** According to the latest (2015) Urban Water Management Plan (UWMP), LBWD delivered roughly 76,983 AF of water in 2015 to approximately 89,000 residents and businesses, for the City. LBWD purchases a substantial portion of its supply from MWD. The imported water supplies are sourced from the Colorado River Aqueduct (CRA) and the State Water Project (SWP). As indicated above, the five-year average well water production is 28,413 AFY per WY. LBWD is looking to increase its well water production by construction of these two wells. If LBWD maximizes the use of the proposed project, then the groundwater usage will increase from 28,413 AFY per WY to 36,350 AFY, which exceeds the allocated rate of 32,693 AFY for LBWD from the Central Basin.

However, per the most recent amendment to the Central Basin judgement, adjudicated parties are allowed to create groundwater storage credits by placing, recharging, injecting, storing, transferring, or recapturing water in the Central Basin. LBWD has stored water accounts and is in the process of developing groundwater augmentation projects to increase its allowable pumping allocation. The proposed project fits within the basin adjudication as it will allow LBWD to utilize its adjudicated pumping allocation. Therefore, it is assumed that LBWD pumping will be increased by the full capacity of the new Wells ALA9A & ALA 14 thereby increasing groundwater production by 28% above the five-year average. In addition, imported supplies would decrease by the same 28%.



**Table 1: Long Beach Water Department Percentage of Water Supply Comparison**

Long Beach Water Department Percentage of Water Supply Comparison (based on 5-year average)		
Water Supply Sources	% of Five-Year Average Annual Supply	% of Average Annual Supply Post-Project
Imported Water	43	24
Local Supply (Groundwater)	47	66
Recycled Water	10	10
<b>TOTALS</b>	100	100

*Provide a brief qualitative description of the degree/significance of the benefits associated with the additional water supplies.* City residents including 12,197 active customer accounts located in SB 535 Disadvantaged Communities will benefit from a local, high-quality water source that is cost-efficient. The significance of this proposed project is to support the LBWD's goal of improved drought resiliency and less dependence on imported water. The volatility of the imported water supply (and that of all Southern California) is at an all-time high, and the need for local, high-quality water for potable use is paramount. This project will produce potable, high-quality water that is not currently available to the LBWD residents. The locally sourced water will provide a less costly source than that of the current imported and recycled water, reducing the overall cost of the water supply, which translates to more sustainable supplies and rates for customers.

*Will the project improve the management of water supplies? For example, will the project increase efficiency, increase operational flexibility, or facilitate water marketing (e.g., improve the ability to deliver water during drought or access other sources of supply)?* Construction of the two proposed wells will increase water management efficiency by allowing the LBWD to distribute water to their residents using the local supplies versus imported water. As mentioned above, supply shortages have forced LBWD to make steep cuts to meet regional water supply goals for the last decade. The water production of these wells will provide a reliable source and reduce dependency on expensive water when most needed.

*If so, how will the project increase efficiency or operational flexibility?* The proposed project will allow for the replacing three old and low production wells and with two new more efficient, high producing wells. The additional production, combined with modern mechanical, control, and communications equipment, will increase efficiency.

*What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated? Provide this quantity in acre-feet per year as the average annual benefit over ten years.* The proposed project will allow up to 36,350 AFY to be pumped from a locally controlled groundwater aquifer and eliminate the import of 7,937 AFY, based on the five-year average as discussed above, from the SWP.

***How will the project increase efficiency or operational flexibility?*** The water demand continues to increase, causing further reliance on more expensive imported water sources. The most significant factors altering water use between 2015 and 2040 will be the increase in water demand from the multi-family sector and the decrease in water use attributable to water conservation efforts. The multi-family sector is expected to increase from 15,517 AFY in 2015 to 20,562 AFY in 2040. The total water demand is expected to increase from 55,206 AFY in 2015 to 59,106 AFY in 2040. Therefore, managing the need for water supply during drought becomes even more critical as the demand for imported water will be at its height. Therefore, providing additional local groundwater will allow LBWD to have the operational flexibility to manage its resources when it is most needed.

***What percentage of the total water supply does the water better managed represent? How was this estimate calculated?*** LBWD has rights to pump 32,693 AFY of groundwater from the Central Basin Aquifer. Based on the most recent amendment to the Central Basin judgement, LBWD has stored water accounts and is in the process of developing groundwater augmentation projects to increase its allowable pumping allocation. The LBWD total water demand is currently close to the minimum 100 gallons per capita per day (GPCD) allocation guaranteed in the MWD Water Supply Allocation Plan (WSAP). However, according to the 2017 Well Rehabilitation Master Plan, (And additional data collected since that time) the City's 24 wells currently produce less than the LBWD's allocated groundwater capacity of 32,693 AFY as shown in the below table.

**Table 2: Annual Groundwater Production (Water Year 2015-2018)**

Water Year	2015	2016-17	2017-18	2018-19
Local Groundwater Production (AF)	32,500	31,749	30,021	27,796

The Master Plan comprehensively evaluated the condition and performance of the City's existing wells and developed a set of prioritized projects for well rehabilitation and replacement. The City followed up with the completion of the Collection Main and New Well Site Study in March 2019. The study updated and validated LBWD's most recent groundwater collection system hydraulic model.

By construction of the two proposed wells, LBWD will be able to maximize the use of well productions and increase from a five-year average of 28,413 AFY per WY to 32,693 AFY allotted. According to the 2015 UWMP, LBWD delivers a total water supply of approximately 76,983 AFY of water to the roughly 89,000 residents and businesses of the City. A simple mathematical calculation reveals that 32,693 AFY is approximately 42% of 76,983 AFY, showing that over **10% of** the total water supply, as shown in Table 1 above, will be better managed with implementation of the proposed project.

***Provide a brief qualitative description of the degree/significance of anticipated water management benefits.*** Good groundwater management post project will provide a buffer against drought and climate change and contribute to reliable water supplies regardless of weather patterns. The significance of locally available reliable water supplies that buffer our community against drought are numerous. To name a few, the benefits include increased groundwater

storage, increased groundwater quality for City residents, conjunctive use opportunities, and less dependence on more expensive imported water supplies.

This project will not only benefit LBWD, but it will also benefit the region by reducing the demand for imported water and the energy used for pumping and delivery.

***Will the project make new information available to water managers? If so, what is that information and how will it improve water management?*** Yes, the project will make new and valuable information available to water managers. LBWD is committed to researching and collecting information about the groundwater it will collect from the proposed project, in partnership with the WRD, mentioned in more detail further in the application. The water supply quality and quantity data LBWD will collect will include, but not be limited to: groundwater elevation data; groundwater extraction data; surface water supply; total water use; change in groundwater storage; and sustainable yield that will provide valuable information for the management of the available water supply.

***Will the project have benefits to fish, wildlife, or the environment? If so, please describe those benefits.*** Yes. In 2008, the Fish and Wildlife Service issued a biological opinion which determined that the continued operation of the Central Valley Project (CVP) and State Water Project (a Reclamation facility) was likely to jeopardize the continued existence of the Delta Smelt, a small fish that lives in the Bay Delta (source of SWP water) and adversely modify its critical habitat. Delta Smelt, among other endangered species, are adversely affected by federal and state exportation of fresh water from the Delta (CVP/SWP). Delta water salinity levels continue to increase, without sufficient freshwater replenishment, thus recent population samples, in an area which typically yielded 50 to 100 smelt fish, now present only six fish, with increased water salinity cited as a major contributing factor. Reduced reliance on imported water from the SWP will contribute to preserving the Delta Smelt habitat and help protect other species.

***If the proposed project provides any of the following components, please provide the applicable additional information: Wells— What is the estimated capacity of the new well(s), and how was the estimate calculated? How much water do you plan to extract through the well(s)? Will the well be used as a primary supply or supplemental supply when there is a lack of surface supplies? Please provide information documenting that proposed well(s) will not adversely impact the aquifer it/they are pumping from (overdraft or land subsidence). At a minimum, this should include aquifer description, information on existing or planned aquifer recharge facilities, a map of the well location and other nearby surface water supplies, and physical descriptions of the proposed well(s) (depth, diameter, casing description, etc.). If available, information should be provided on nearby wells (sizes, capacities, yields, etc.), aquifer test results, and if the area is currently experiencing aquifer overdraft or land subsidence.*** The proposed project includes the construction of two new wells: Alamitos 9A and Alamitos 14, which are expected to produce a capacity of 2,500 gallons per minute each (8,066 AFY total). The estimate was calculated using Central Basin aquifer measurements in the Collection Main and New Well Site Study, which measured aquifer yields for existing wells in the Central Basin ranging between 1,200 to 4,300 gallons per minute with an average of approximately 2,960 gpm. Based on the measured pumping rates for the wells in the Central Basin and considering that ALA 9A & ALA 14 are new and will be equipped with modern

equipment, a conservative pumping rate of 2,500 gpm for each well is used (i.e. 4,033 AFY) for a total of 8,066 AFY for the two wells. The LBWD plans to use the groundwater as a primary supply.

**Physical Description of Well:** Alamitos Wells 9A & 14. Depth: 860 feet below ground surface; Diameter: 18-inch casing; Sustainable Well Yield: 2,500 gallons per minute (8,066 AFY for the two wells). Please see above descriptions and Appendix 5 for details.

**Central Basin Aquifer Description:** The Central Basin is a deep alluvial depression, covering approximately 277 square miles, and is bounded to the north by the Hollywood Basin and Elysian, Repetto, Merced, and Puente Hills, to the east and southeast by the Los Angeles and Orange County line, and by the Newport-Inglewood Uplift (NIU) to the southwest. The Central Basin is generally divided into four areas, including the Los Angeles and Montebello Forebays, the Whittier Area, and the Pressure Area (see Figure 2).

LBWD has the rights to pump 32,693 AFY of groundwater from the Central Basin Aquifer. The Central Basin was seriously over-drafted by the mid-1900's, which led to the basin's adjudication in the Los Angeles County Superior Court in the early 1960's. The adjudication now provides the framework for managing the Central Basin by apportioning pumping rights. LBWD has stored water accounts and is in the process of developing groundwater augmentation projects to increase its allowable pumping allocation.

However, because the annual pumping rights allocated in the Central Basin Judgment exceed the natural yield of the basin, the Judgment also charges the WRD with the responsibility of replenishing the basin. Parties extracting water from the basin pay an assessment to WRD on a per-acre-foot extracted basis, revenue that is used by WRD to replenish and protect the basin.

The combination of strict extraction limitations and a variety of replenishment activities that have a dependable source of funding have made the Central Basin a very reliable water supply.

**Central Basin Aquifer Wells near the Project Site:** Table 3 below from the 2019 Collection Main and New Well Site Study has information on the all of LBWD's wells. Figure 2 shows the underground basins for the LBWD's wells. As discussed above, the Central basin is not experiencing aquifer overdraft or land subsidence.

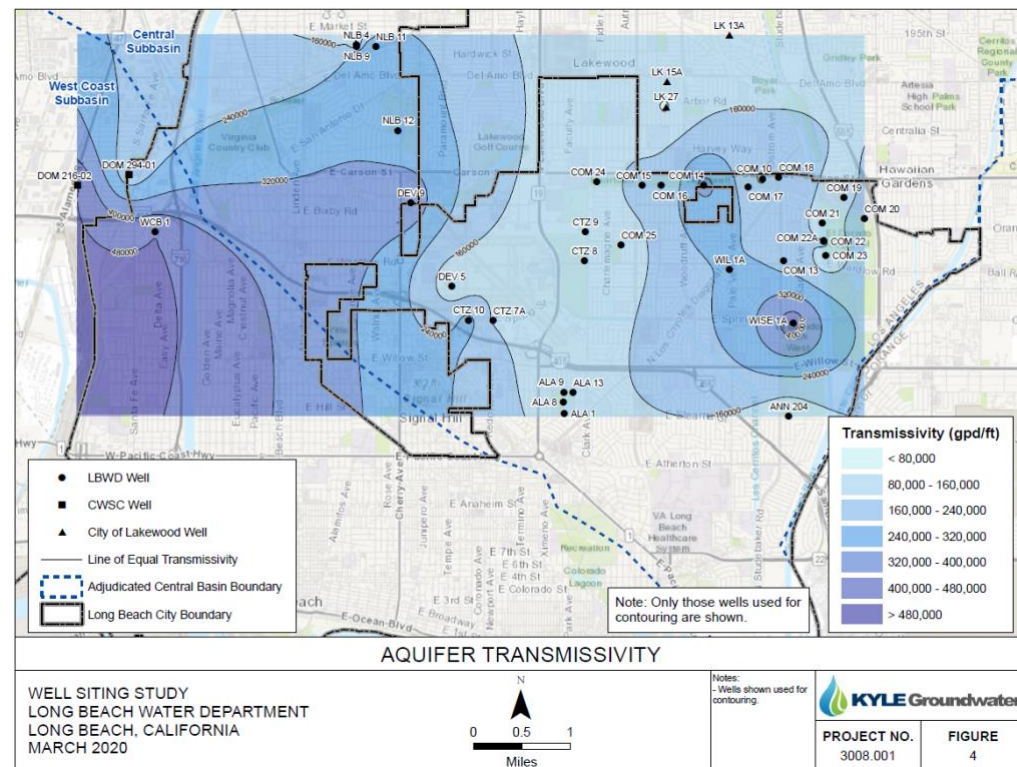


**Table 3: Well Pump Test Data Summary**

Well	Test Date	Discharge Pressure (psi)	Pumping Water Level (ft)	Total Head (ft)	Capacity (gpm)
Alamitos 13	25-Sep	14	185	217	261
Alamitos 8	25-Sep	15	125	159	547
Alamitos 9	25-Sep	15	125	158	359
Citizens 10	11-Oct	7	219	236	2,650
Citizens 7A	4-Oct	9	215	236	1,212
Citizens 8	25-Sep	12	200	229	92
Citizens 9	26-Sep	12	185	213	166
Commission 10	26-Sep	15	196	230	686
Commission 14	3-Oct	13	215	244	2,004
Commission 15	27-Sep	13	207	236	1,383
Commission 16	Offline <sup>1</sup>				
Commission 17	27-Sep	15	248	282	690
Commission 18	26-Sep	14	184	216	565
Commission 19	Offline <sup>1</sup>				
Commission 20	Offline <sup>1</sup>				
Commission 21	27-Sep	15	200	234	1,246
Commission 23	Offline <sup>1</sup>				
Commission 24	4-Oct	16	177	213	1,074
Commission 25	3-Oct	18	178	220	976
Development 5	11-Oct	12	261	288	188
Development 9	4-Oct	11	230	256	664
North Long Beach 11	2-Oct	18	223	265	337
North Long Beach 12	2-Oct	8	169	186	1,210
North Long Beach 4	2-Oct	18	211	253	244
North Long Beach 9	Offline <sup>1</sup>				
Wilson 1A	3-Oct	15	168	203	579
Wise 1A	3-Oct	17	208	248	1,040

<sup>1</sup> Offline during the test date

**Figure 2. Map of Underground Basins and Wells**



*Please describe the groundwater monitoring plan that will be undertaken and the associated monitoring triggers for mitigation actions.* As mentioned above, the WRD is the groundwater management agency responsible for managing, regulating, and replenishing the Basin, and is the official Groundwater Level Monitoring Entity for the Basin. As it is demonstrated in Appendix 2, WRD is in support of the proposed project to enhance local sustainability. WRD has been monitoring the Central Basin and West Coast Basin for more than 50 years and produces the Regional Groundwater Monitoring Report annually with comprehensive information from WRD's growing network of aquifer-specific monitoring wells and in-depth water quality analysis. The Regional Groundwater Monitoring Report presents information on groundwater levels and groundwater quality for the previous WY, which runs from October 1 through September 30 of each year.

WRD will continue to update and augment its Regional Groundwater Management Plan (Central Basin and West Coast Basin Aquifers) to best serve the needs of the District, the pumpers, and the public. Some of the possible mitigation activities planned, or which utilize data generated from this program are listed below:

- Continue to maximize recycled water use without exceeding regulatory limits.
- WRD will continue to maximize recycled water use at the West Coast Basin Seawater Intrusion Barrier and will promote maximum permitted recycled water injection at the Dominguez Gap and Alamitos Gap Seawater Intrusion Barriers.
- WRD will continue efforts under its Groundwater Contamination Prevention Program in order to minimize or eliminate threats to groundwater supplies.

The Groundwater Contamination Prevention Program includes several ongoing efforts, including the Central Basin and West Coast Basin Groundwater Contamination Forum with key stakeholders that meet regularly and share data on contaminated groundwater sites within WRD's service area.

*Describe how the mitigation actions will respond to or help avoid any significant adverse impacts to third parties that occur due to groundwater pumping.* As discussed in the above sections of the grant application, the Central Basin is an adjudicated basin with groundwater pumping regulated by a Watermaster. Therefore, per the basin adjudication, LBWD would only be allowed to pump groundwater in a manner that it does not have any adverse impacts to third parties.

### **E.1.2. Evaluation Criterion B — Drought Planning and Preparedness**

*Attach a copy of the applicable drought plan, or sections of the plan, as an appendix to your application. These pages will not be included in the page count.* The LBWD Drought Contingency Plan Resolution is included in Appendix 3. Significant background information for this subject can be found in Chapters 3, 4, 6, 7, and 8 of the 2015 LBWD Urban Water Management Plan, which is available online at <http://www.lbwater.org/UWMP>

*Explain how the applicable plan addresses drought.* LBWD has a long history of preparing for and addressing drought and its consequences. LBWD's efforts include the development of the

comprehensive (2015) Urban Water Management Plan. LBWD created and passed a Drought Contingency Plan Resolution, which is located in Appendix 3, to support staff in implementing the UWMP drought contingency projects. Prior to the UWMP, the LBWD worked with MWD and other relevant entities and agencies to develop the 1996 and subsequent 2004 Integrated Resource Plans (IRP) that have made investments in conservation and supply augmentation as a part of its long-term water management strategy, and provided a large portion of information for the UWMP.

The UWMP includes a Contingency Response Plan that implements initiatives to optimize water supply during water shortages or drought conditions. Due to the size of the UWMP we have provided the below link in order to access the document: <http://www.lbwater.org/UWMP>

The objectives of the UWMP Response Plan are to:

- a) Prioritize essential uses of available water
- b) Avoid irretrievable loss of natural resources
- c) Manage current water supplies to meet ongoing and future needs
- d) Maximize local municipal water supplies
- e) Eliminate water waste city-wide
- f) Create equitable demand reduction targets
- g) Minimize adverse financial effects

In addition, in the face of recurring droughts and growing future demand, LBWD is continually engaged in extensive planning efforts and construction activities on its water system. These planning efforts, including the 2015 Urban Water Management Plan, 2017 Well Rehabilitation Master Plan and the 2019 Collection Main and New Well Site Study assess existing infrastructure, estimate future demand, and propose and prioritize capital projects that are basis of planning for drought conditions.

In the event of a water shortage, the City Council implements the appropriate water conservation stage by resolution.

***Explain whether the drought plan was developed with input from multiple stakeholders. Was the drought plan developed through a collaborative process?*** As part of the UWMP, the initial resource strategies included a multi-level collaborative process that involved MWD member agencies, retail water agencies, other water and wastewater managers, environmental, business, and community interests. In the fall of 2008, MWD's senior management, Board of Directors, member agency managers, elected officials, and community groups collectively met and discussed strategic direction and regional water solutions at a series of four stakeholder forums; nearly 600 stakeholders participated in the forums. Stakeholder data was directly utilized in the UWMP.

***Does the drought plan include consideration of climate change impacts to water resources or drought?*** Yes. Chapter 6 of the UWMP discusses climate change and MWD's focus as an active and founding member of the Water Utility Climate Alliance (WUCA). "As a major steward of the region's water supply resources, MWD is committed to performing its due diligence with respect to climate change." Overall, MWD and LBWD's planning activities listed in the UWMP strive to support adopted policy principles on climate change by: supporting reasonable,



economically viable, and technologically feasible management strategies for reducing impacts on water supply; supporting flexible “no regret” solutions that provide water supply and quality benefits while increasing the ability to manage future climate change impacts; and evaluating staff recommendations regarding climate change and water resources against the California Environmental Quality Act (CEQA) to avoid adverse effects on the environment.

In addition, the City of Long Beach developed the [Climate Resiliency Assessment Report](#) in 2015. The Report concluded that the top threat of climate change to the Long Beach area is the occurrence of droughts. The Report also makes recommended actions that the City may take to increase the climate-resiliency of its freshwater supply.

*Describe how your proposed drought resiliency project is supported by and existing drought plan. Does the drought plan identify the proposed project as a potential mitigation or response action? Does the proposed project implement a goal or need identified in the drought plan?*

LBWD created and passed a Drought Contingency Plan Resolution, which is located in Appendix 3, to support staff in implementing the UWMP drought contingency projects. The proposed drought resiliency project to drill Alamitos Wells 9A & 14 that penetrate the existing Central Basin aquifer to capture raw water to produce clean potable water for city residents and businesses is supported by the UWMP as explained above. LBWD also completed the 2019 Collection Main and New Well Site Study, that updated and validated LBWD’s most recent groundwater collection system hydraulic model, identifying the potential project sites for well locations.

*Describe how the proposed project is prioritized in the referenced drought plan.* The City of Long Beach developed the [Climate Resiliency Assessment Report](#) in 2015. The Report concluded that the top threat of climate change to the Long Beach area is the occurrence of droughts. As it is noted above the implementation of proposed project is in direct alignment with the following goals of the UWMP Response Plan:

- Manage current water supplies to meet ongoing and future needs
- Maximize local municipal water supplies

The 2019 Collection Main and New Well Site Study that was completed to support the recommendations of UWMP and objectives of the Drought Contingency Plan, identified the aquifer yield and capacity of the wells.

### **E.1.3. Evaluation Criterion C — Severity of Actual or Potential Drought Impacts Addressed by the Project.**

*What are the ongoing or potential drought impacts to specific sectors in the project area if no action is taken, and how severe are those impacts?* Having had major ongoing droughts in recent years, LBWD has experienced a variety of drought impacts, such as shortages of drinking water supplies, increased risk of wildfires, and environmental concerns. Impacts include the following:

**Water Supply Shortage.** As noted throughout this application, LBWD relies on imported water from MWD for its potable water which draws water from the State Water Project (SWP). The SWP is an enormous water conveyance system, supplying water to agencies throughout California. The water supply available to the SWP is derived directly from the Sierra Nevada snowpack. the Sierra Nevada Snowpack held only 8% of its historical average at the end of 2015. As a result of population growth, Southern California is expected to experience an increase in regional demands in the years 2015 through 2035 due to increased population that necessitates increases in water supply.

**Increased Risk of Wildfires.** Southern California in December 2017 experienced the largest wildfire in the region (Thomas Fire) and the second largest wildfire ever recorded in the history of California (largest is the Mendocino Complex Fire in 2018) and has recorded significant wildfires each decade since the mid-20th century. The record-setting drought conditions have dried out much of the terrain in all of Los Angeles County, including the City of Long Beach. In extended drought conditions, fire behavior can become more extreme because vegetation that has been dried burn quicker.

**Economic Impacts.** Wildfires also pose **economic threats** to urban residents, like those in the City of Long Beach. An average of 500 homes are destroyed throughout the state each year, with Los Angeles County homes being at the highest risk of being destroyed in a wildfire than any other county in the state. A disastrous consequence of water scarcity is the reduced ability to contain and suppress fires, which could intensify the already-extreme fire risk.

**Environmental Impacts.** Coastal areas are impacted severely by climate change effecting both the local economy (Port of Long Beach) as well as the massive wildlife along the Los Angeles River. Scientists warn of coastal flooding and mass fish and water-bird extinctions as predicted by the Southern California Audubon Society. Reduced breeding success has been documented for the Willow Flycatcher, Red-tailed Hawk, and waterfowl – evidence that the drought is having a substantial effect on local birds.

There is no question that drought has severely affected the LBWD's imported water supplies from the Colorado River and Northern California. Drought resiliency for the City can best be provided by becoming less reliant upon imported water. By increasing its groundwater pumping capacity, the proposed project will accomplish exactly that.

*Describe any projected increases to the severity or duration of drought in the project area resulting from climate change.* The City of Long Beach developed the Climate Resiliency Assessment Report in 2015. The Report concluded that the top threat of climate change to the Long Beach area is the occurrence of droughts. The Report also makes recommended actions that the City may take to increase the climate-resiliency of its freshwater supply.

Former President Obama issued a Memorandum and Action Plan to communicate impacts of drought. The national Memorandum specifically names California water basins suffering from, or at-risk for drought. A 2015 study that analyzed multiple levels of atmospheric pressure concluded that climate change worsened California's dry season by up to 20%. Experts predict climate change is expected to increase the frequency, intensity, and duration of droughts. Scientists are comparing Southern California's current drought conditions to similar mega-droughts in the region that occurred 1,000 years ago. Severe water shortages caused major

societal disturbances, including human mortality. They warn that drought conditions will be as or more severe than the mega-droughts of the past and cannot be ignored.

#### **E.1.4. Evaluation Criterion D — Project Implementation**

The proposed project is 100% capable of proceeding into a financial assistance agreement with Reclamation immediately upon notice of award. LBWD's portion of the project's total cost is immediately available and will be supplemented from the LBWD's Water Enterprise Fund.

The Alamitos Wells ALA9A & ALA14 Project is in the design phase and construction will follow as soon as design has been completed. All preliminary work has been completed, including the following:

1. Site determination
2. Design criteria & preliminary design per the Collection Main and New Well Study -2019
3. Design consultant selection process has started

LBWD will manage the project with the assistance of a construction management company. LBWD has a proven track record in managing large-scale projects including the existing 24 groundwater wells. LBWD has more than 250 employees to support operating activities and construction projects and has an annual operating budget slightly over \$134 million supporting the 7<sup>th</sup> largest city in California. LBWD desires to serve their customers by obtaining grants and loans to help off-set some of the Water Fund expenditures.

***Describe the implementation plan for the proposed project. Include estimated project schedule.***

LBWD has already retained a consultant that is currently engaged in the design of the project. The schedule below describes the project milestones in more detail.

**Table 4: Estimated Project Schedule**

Estimated Project Schedule			
No.	Task / Milestone	Start Date	Completion Date
1.	Site determination/Conceptual design		Complete
2.	Environmental Review	December 2020	September 2021
3.	MND Approval	December 2020	September 2021
4.	Design Consultant Contract	In Process	October 2020
	100% PS&E Submittal	December 2020	August 2021
5.	Public Bid Process	September 2021	October 2021
6.	Award Construction Contract	November 2021	November 2021
7.	Construction Period	December 2021	September 2023
8.	Project Complete		December 2023

*Describe any permits that will be required, along with the process for obtaining such permits.*

All work will be completed in accordance with the City of Long Beach (including departments of Parks and Recreation, Marine and Building Dept.), LBWD and the California Department of Water Resources (DWR). In addition, the following permits are required for operation of the wells:

- California Division of Drinking Water (DDW) permit
- Domestic Water Supply Permit Amendment
- California Dept. Of Public Health (CDPH) and City of Long Beach Department of Public Health approval
- Southern California Edison: The site will require new 480-volt 3-phase electric service to operate electric motors for the well pumps for Wells ALA9A and ALA14 and operation of the building. The service permit will be obtained in the design phase of the project.
- State of California Regional Water Quality Control Board
- State Water Resources Control Board (SWRCB): A permit to discharge storm water associated with construction activity is required
- Los Angeles County Flood Control District (LACFD): for tie-in to the storm drain system for the drain line. Procedures for the LACFD will be followed to obtain this permit.
- Los Angeles County Sanitation District (LACSD): for the sewer from the utility building.

*Identify and describe any engineering or Design Work performed specifically in support of the proposed project.* Site study and identification have been completed for the project. The study determined the sites for the wells, established design criteria and parameters, as well as well components and materials. LBWD has already retained a consultant that is currently engaged in the design of the project. As indicated in the above schedule, 100% plans are expected in August 2021.

*Describe any new policies or administrative actions required to implement the project.* With the exception of award of construction and professional service contracts, no new policies or administrative actions are required to implement the project.

*Describe how the environmental compliance estimate was developed. Has the compliance costs been discussed with the local Reclamation office?* The project will be evaluated for both CEQA and National Environmental Policy Act (NEPA) compliance and it is anticipated that the environmental process for this project will include a mitigated negative declaration.

### E.1.5. Evaluation Criterion E — Nexus to Reclamation

*How is the proposed project connected to a Reclamation project or activity?* LBWD receives substantial portions of its water from the MWD, which is the designated contractor for the Colorado River Project and the Cal Fed Bay Delta Project (State Water Project). The LBWD's goal is to continue to reduce its dependence on these sources with expanded, more efficient use of its groundwater supplies.

*Will the project benefit any tribe(s)?* The proposed project will not meet trust responsibilities to tribes directly. However, freeing up water from the SWP and Colorado Aqueduct by using local supplies in untapped aquifers through the Alamitos Wells 9A and 14 in the City of Long Beach will indirectly allow Reclamation facilities to better meet their responsibilities to tribes.

*Does the applicant receive Reclamation project water?* Yes. The LBWD receives its water from MWD, which is supplied from the original water sources of the CRA and the SWP.

*Is the project on Reclamation project lands or involving Reclamation facilities?* The project is not on Reclamation lands but will directly benefit Reclamation project facilities and environmental impacts from a long-term, decreased dependence on Reclamation water.

*Is the project in the same basin as a Reclamation project or activity?* No.

*Will the proposed work contribute water to a basin where a Reclamation project is located?* The project will decrease dependence on both the State Water Project and the Colorado Aqueduct projects, which means less water will be pulled from these projects' source basins.

### E.1.6. Evaluation Criterion F — Department of the Interior Priorities

*Creating a conservation stewardship legacy second only to Teddy Roosevelt. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment.* The Alamitos Wells 9A and 14 Project is an excellent example of using modern engineering science and hydrogeology to better manage our limited water resources in response to changes in the environment.

*Utilizing Our natural resources: Ensure American energy is available to meet our security and economic needs* Reducing dependence on imported water, will reduce the need for the energy and resources required to convey the imported water to LBWD.

*Restoring trust with local communities. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands.* This project proposes to remove 3 old wells and construct two new groundwater wells, which will result in a net reduction of our reliance on imported water supplies by up to 7,937 AFY each year. That 7,937 AFY that we would no longer be using is literally a “gift” to our neighbors from LBWD. By giving this gift to our neighbors, we would be building trust and demonstrating how the implementation of the project has helped us to be a better neighbor.

*Modernizing our infrastructure : a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure; b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs; c. Prioritize DOI infrastructure needs to highlight: 1) Construction of infrastructure; 2) Cyclical maintenance; and 3) Deferred maintenance.* Being a water infrastructure project, The Alamitos Wells Project 9A and 14 Project is in keeping with the Department of the Interior (DOI) goal of “Construction of Infrastructure”. In addition, the proposed project achieves the following Bureaus of Reclamation Priorities:

**1. Increase Water Supplies, Storage and Reliability:** Implementation of the two wells will increase the local water supply by 7,937 AFY for the two new wells and provide the flexibility in storage and reliability needed during drought times.

**2. Leverage Science and Technology to Improve Water Supply Reliability to Communities:** The construction of new wells ALA 9A & ALA 14 will be equipped with modern equipment to achieve the greatest efficiency, thereby fulfilling priority number 2 stated above.

**3. Address Ongoing Drought:** In the face of recurring droughts and growing future demand, LBWD is continually engaged in extensive planning efforts and construction activities on its water system. These planning efforts, including the 2015 Urban Water Management Plan, 2017 Well Rehabilitation Master Plan and the 2019 Collection Main and New Well Site Study assess existing infrastructure, estimate future demand, and propose capital projects, including the construction of groundwater production wells Alamitos 9A & Alamitos 14 to reduce the City’s reliance on MWD’s water supply.

**4. Improve Water Supplies for Tribal and Rural Communities:** Freeing up water from the SWP and Colorado Aqueduct by increasing the use of local (groundwater) supplies in untapped aquifers through the construction of new water wells Alamitos 9A and 14 in will improve water supplies for tribal and rural communities by making those sources more plentiful for them.



## SECTION 2: PROJECT BUDGET

### *Standard Form 424 Budget Information C*

Submitted separately with all other relevant SF-424 forms.

#### *A. Funding Plan and Letters of Commitment*

*Describe how the non-Reclamation share of project costs will be obtained. Reclamation will use this information in making a determination of financial capability. Please identify the sources of the non-Federal cost share contribution for the project,*

As it is demonstrated by the prior efforts on this project to complete the feasibility study and preliminary engineering, Alamitos Wells 9A and 14 is a key project for LBWD as its implementation will result in reduced reliance on imported water and cost savings. There has been substantial expenditure to date to complete the site study and LBWD is eager and committed to complete the construction of this project upon award of this grant funding.

LBWD will provide its cost share in monetary contributions. The source funds for the contribution are from the Water Fund. The Water Fund revenues are from potable water sales, daily service charges, Leo Vander Lands Water Recycling Facility reimbursement from WRD, rent and easements, Alamitos Barrier Reimbursement from Orange County Water District, miscellaneous revenue, other services and interest income.

As shown in the Long Beach Water Board Resolution approved on June 25, 2020, LBWD is committed to providing the remaining matching fund to complete this project immediately.

*Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources. This is a mandatory requirement. Letters of commitment shall identify the following elements:*

LBWD does not have any other funding partners that will be contributing to the project.

*Please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:*

- *The project expenditure and amount.*
- *The date of cost incurrence.*
- *How the expenditure benefits the project.*

LBWD is submitting this request for funding of the construction phase only and therefore, will not be requesting reimbursement for any pre-award costs. However, the project is currently in the design phase and the costs for this phase will be included in the project budget below.



The design cost will benefit the project by developing environmental documentation and producing plans, specifications and estimate to advance the project to the construction phase.

## ***B. Budget Proposal***

**Table 5: Total Project Cost**

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	<b>\$ 1,500,000</b>
Costs to be paid by the applicant	<b>\$ 7,865,341</b>
Value of third-party contributions	<b>\$ 0</b>
<b>Totals</b>	<b>\$ 9,365,341</b>

**Table 6: Summary of Non-Federal and Federal Funding Sources**

FUNDING SOURCES	AMOUNT	% of Project Cost
<b>Non-Federal Entities</b>		
LBWD	<b>\$ 7,865,341</b>	<b>86%</b>
<b>Non-Federal Subtotal</b>	<b>\$ 7,865,341</b>	<b>86%</b>
<b>Other Federal Entities</b>		
None	<b>\$ 0</b>	<b>-%</b>
<b>Other Federal Subtotal</b>	<b>\$ 0</b>	<b>-%</b>
<b>REQUESTED RECLAMATION FUNDING</b>	<b>\$ 1,500,000</b>	<b>16%</b>

**Table 7: Project Budget Proposal**

Budget Item	Computation		Quantity Type	Total Costs
	\$ / Unit	Quantity		
Salaries and Wages				
N/A				
Fringe Benefits				
N/A				
Travel				
N/A				
Equipment				\$ 1,944,000
Well 9A Equipment	\$ 972,000	1	LS	\$ 972,000
Well 14 Equipment	\$ 972,000	1	LS	\$ 972,000
Supplies and Materials				
N/A				
Contractual: Design and Construction				\$ 7,416,341
Design Consultant				
Design and Environmental Documentation	\$ 855,165	1	LS	\$ 855,165
Construction Management & Inspection Services	\$ 1,068,956	1	LS	\$ 1,068,956
Construction Contractor				
Well 9A Construction	\$ 2,340,000	1	LS	\$ 2,340,000
Well 14 Construction	\$ 2,112,000	1	LS	\$ 2,112,000
Well 9A & 14 Collection Pipeline	\$ 420	130	LF	\$ 54,600
Parking Lot Demo/Reconstruction for Well 14	\$ 20	14,000	SF	\$ 285,600
Well 9A Landscape and Misc.	\$ 12,000	1	LS	\$ 12,000
Well 14 Landscape and Misc.	\$ 12,000	1	LS	\$ 12,000
Contingency (10%)	\$ 676,020	1	LS	\$ 676,020
Total Direct Costs				\$ 9,360,341
Indirect Costs				\$ 5,000
BOR Environmental Review	\$ 5,000	1	LS	\$ 5,000
Total Estimated Project Costs				\$ 9,365,341

## ***C. Budget Narrative***

### **Equipment**

The project will require the purchase of a substantial amount of equipment as detailed in Table 7 above. The construction contract will include the purchase of equipment by the selected contractor.

### **Contractual/Construction**

#### ***Design Consultant***

The design and construction management contracts for the project, have to follow LBWD's procurement through a competitive bid process, includes a qualified Project Engineer/Construction Manager to oversee construction of the project on behalf of LBWD and Reclamation. In the past, LBWD staff have provided this service, but budget has been allocated to hire a qualified Project Engineer/Construction Manager. The design contract when awarded will produce the plans, specifications and estimate required to advance the project to the construction phase.

#### ***Construction Contractor***

Through a competitive bid process, a qualified Contractor will be selected to complete the planned project. The construction contract breakdown is shown in Table 7 above. The construction contract will also include the purchase of equipment.

### **Environmental and Regulatory Compliance Costs**

Cost of preparation of the environmental document will be borne by LBWD. All costs that will be incurred in acquiring permits and any required mitigation measures will be borne by the contractor as shown in Table 7 above.

#### ***The cost incurred by Reclamation to determine the level of environmental compliance required for the project***

The project will be evaluated for both CEQA and NEPA compliance and it is anticipated that the environmental process for this project will be a mitigated negative declaration. Since the NEPA documents will be prepared by the LBWD consultant, an allocation of \$5,000 has been stipulated in the project budget for Reclamation's oversight as reflected in Table 7.

#### ***The cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports***

All costs that will be incurred in preparing environmental documentation will be borne by the design consultant as shown in Table 7 above. Since the NEPA documents will be prepared by the LBWD consultant, an allocation of \$5,000 has been stipulated in the project budget as reflected in Table 7.

#### ***The cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures***

All costs that will be incurred in acquiring permits and any required mitigation measures will be borne by the contractor as shown in Table 7 above.

### **Reporting**

All reporting requirements will be performed by the Project Engineer/Construction Manager and reviewed by the LBWD's Engineering Manager and is included in the design consultant contract.

### **Other Expenses**

No other costs are anticipated to fall into this section that are not covered elsewhere.

### **Indirect Costs**

The only indirect cost considered is the environmental review by Reclamation.

### **Total Costs**

The project's total cost is **\$9,365,341**. The federal cost share amount is \$1,500,000 (about 16%) and the non-federal cost share amount is \$7,865,341 (about 84%).

## SECTION 3: ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

*Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

The project is not expected to impact the surrounding environment other than dust and noise during construction. Contractor will be required to follow City ordinances to reduce impact on the community. Additionally, because the wells will be constructed in parks with high exposure to pedestrian traffic, wellhead sound attenuation will be incorporated into the design to achieve a result that is both effective and aesthetically pleasing.

*Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*

There are no known species listed as a Federal threatened or endangered species in the project area.

*Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.*

There are no wetlands or other surface waters inside the project boundaries.

*When was the water delivery system constructed?*

The water delivery system that will be the focus of the proposed project was constructed in the 1970's and upgraded in the 1980's and 1990's.

*Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

The proposed project will not result in any modification of individual features of an irrigation system such as headgates, canals, or flumes.

*Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.*

There are no buildings, structures, or features in the proposed project area that are listed or eligible for listing on the National Register of Historic Places within this project area.

*Are there any known archeological sites in the proposed project area?*

There are no known archeological sites in the proposed project area.

*Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?*

No. The proposed project will have a highly positive effect on all residents of the City of Long Beach and its surrounding areas including low income, disadvantaged and minority populations. The project will produce a new source of safe drinking water locally, decrease dependence on water imported from the State Water Project (SWP) and Colorado Aqueduct, and replace lost groundwater production.

*Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?*

No, the project will not have any impacts on sacred sites or tribal lands.

*Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*

The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

## **SECTION 4: REQUIRED PERMITS OR APPROVALS**

All work will be completed in accordance with the City of Long Beach (including departments of Parks, Recreation, Marine and Building Dept.), LBWD and the California Department of Water Resources (DWR). In addition, the following permits are required for operation of the wells:

- California Division of Drinking Water (DDW) permit
- Domestic Water Supply Permit Amendment
- California Dept. Of Public Health (CDPH) and City of Long Beach Department of Public Health. approval
- Southern California Edison: The site will require new 480-volt 3-phase electric service to operate electric motors for the well pumps for Wells ALA9A and ALA14 in addition to operation of the building. The service permit will be obtained in the design phase of the project.
- State of California Regional Water Quality Control Board
- State Water Resources Control Board (SWRCB): A permit to discharge storm water associated with construction activity is required
- Los Angeles County Flood Control District (LACFD): A permit is required for tie-in to the storm drain system for the drain line. Procedures for the LACFD will be followed to obtain this permit.
- Los Angeles County Sanitation District (LACSD): A permit from the LACSD will be required for the sewer from the utility building. Procedures for the LACSD will be followed to obtain this permit.



## **SECTION 5: LETTERS OF SUPPORT**

Per Reclamation’s application guidelines in Section D.2.2.9. Letters of Support, all statements of support from interested stakeholders are included in Appendix 2.

## SECTION 6: OFFICIAL RESOLUTION

The Board of Water Commissioners of the City of Long Beach approved the following Resolution for pursuit of grant funding for this project on June 25, 2020.

OFFICE OF THE CITY ATTORNEY  
CHARLES PARKIN, City Attorney  
411 West Ocean Boulevard, 9th Floor  
Long Beach, CA 90802-4664

1 RESOLUTION NO. WD-1432

2  
3 A RESOLUTION OF THE BOARD OF WATER  
4 COMMISSIONERS OF THE CITY OF LONG BEACH  
5 APPROVING THE APPLICATION TO THE UNITED STATES  
6 DEPARTMENT OF THE INTERIOR, BUREAU OF  
7 RECLAMATION, WATERSMART DROUGHT RESPONSE  
8 PROGRAM FOR THE CONSTRUCTION OF NEW WELLS  
9 ALAMITOS 9A AND ALAMITOS 14

10  
11 WHEREAS, the United States Department of the Interior, Bureau of  
12 Reclamation (USBR) WaterSMART Drought Response Program established a framework  
13 to provide Federal leadership and assistance to stretch and secure water supplies for the  
14 future; and

15 WHEREAS, with WaterSMART grants, USBR provides cost-sharing funding  
16 on a competitive basis to implement projects that will build long-term resiliency to  
17 drought; and

18 WHEREAS, in order for the Long Beach Water Department to receive and  
19 expend grant funding, the USBR requires the Board of Water Commissioners to adopt a  
20 resolution identifying the official with the legal authority to enter into an agreement with  
21 USBR, and authorize the official to commit the Long Beach Water Department to the  
22 financial and legal obligations associated with receipt of the WaterSMART Drought  
23 Response Program Grant financial assistance;

24 NOW, THEREFORE, the Board of Water Commissioners of the City of  
25 Long Beach resolves as follows:

26 Section 1. Approves and supports the filing of an application with the  
27 Department of the Interior, Bureau of Reclamation for the WaterSMART Drought  
28 Resiliency Program funding and further authorizes the expenditure of funds or in-kind

OFFICE OF THE CITY ATTORNEY  
CHARLES PARKIN, City Attorney  
411 West Ocean Boulevard, 9th Floor  
Long Beach, CA 90802-4664

1 contributions by the Long Beach Water Department as specified in the funding plan for  
2 construction of new wells Alamitos 9A and Alamitos 14.

3 Section 2. Appoints the General Manager as agent of the Applicant to  
4 conduct all negotiations and execute and submit all documents, including, but not limited  
5 to, applications, contracts, amendments, payment requests, and compliance with all  
6 applicable laws which may be necessary for the completion of the aforementioned  
7 Project.

8 Section 3. Directs the General Manager to work with the USBR to meet  
9 established deadlines for entering into a cooperative agreement.

10 Section 4. This Resolution shall take effect immediately upon its  
11 adoption by the Board, and the Secretary to the Board shall certify the vote adopting this  
12 Resolution.

13 I hereby certify that this Resolution was adopted by the Board of Water  
14 Commissioners of the City of Long Beach at its meeting on June 25, 2020 by the  
15 following vote:

16  
17 Ayes: Commissioners: SHANNON; CORDERO; SALTZGAVER

18  
19  
20 Noes: Commissioners: NONE

21 Absent: Commissioners: MARTINEZ; LEVINE

22  
23  
24   
25 Acting Secretary  
26 Board of Water Commissioners  
27  
28

## APPENDIX 1: Proof of SAM Registration

**Use the SAM Status Tracker Now**

Check registration status by typing in a DUNS Number.

DUNS Number  Plus 4 (Optional)








Or, check registration status by typing in a CAGE Code.

CAGE Code

LONG BEACH, CITY OF

**Status: Active**

Your registration was activated on Mar 02, 2020. It expires on Mar 02, 2021 which is one year after you submitted it for processing.

						
<b>Core Data</b>	<b>Assertions</b>	<b>Reps &amp; Certs</b>	<b>POCs</b>	<b>Submit</b>	<b>Processing</b>	<b>Active</b>
Completed	Not Required	Not Required	Completed	Completed	Completed	Completed

## APPENDIX 2: LETTERS OF SUPPORT



DIRECTORS  
VERA ROBLES DEWITT, PRESIDENT  
SERGIO CALDERON, VICE PRESIDENT  
MILLARD H. MURRAY, JR., SECRETARY  
ROD KATHELMAN, TREASURER  
JOHN D. S. ALLEN, DIRECTOR  
ROBB WHITAKER, P.E., GENERAL MANAGER

June 29, 2020

U.S. Bureau of Reclamation  
Financial Assistance Support Section  
Attn: Mr. Matthew Reichert  
P.O. Box 25007, MS 84-27814  
Denver, CO 80225

Mr. Reichert,

Please accept this letter of support for the Long Beach Water Department's grant application for their New Wells Alamitos 9A and 14 Project in Stearns Park located at 4520 E 23<sup>rd</sup> Street, Long Beach, CA. The Long Beach Water Department is tasked with providing a clean and reliable supply of drinking water to each of the City's approximately 500,000 residents. The well project at Stearns Park is one of many capital improvement projects that demonstrate LBWD's commitment to continuing to provide the City of Long Beach with the highest level of infrastructure reliability, efficiency, and quality.

The Water Replenishment District (WRD) is the largest groundwater agency in the State of California, managing and protecting local groundwater resources for four million residents in 43 cities throughout Southern Los Angeles County. The 420-square mile service area uses about 250,000 acre-feet of groundwater per year. Today, WRD protects the basins through artificial groundwater replenishment, ensuring that aquifers maintain healthy levels. WRD further protects the basins from seawater intrusion by injecting water into wells along the coastline to keep the ocean from further contaminating the fresh groundwater aquifers. Projects like this will provide valuable remediation and development of groundwater resources. By implementing this project, Long Beach Water will be able to provide locally sourced water to its residents while freeing up more storage space for future groundwater recharge initiatives – a win for both residents and the basins.

The Water Replenishment District (WRD) firmly supports this grant application and the efforts of the Long Beach Water Department.

Sincerely,



Robb Whitaker  
General Manager



THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA

Office of the General Manager

June 25, 2020

Mr. Chris Garner  
General Manager  
Long Beach Water Department  
1800 East Wardlow Road  
Long Beach CA 90807

Dear Mr. Garner:

Letter of Support for  
the Long Beach Water Department for the New Wells Alamitos 9A and 14  
Project grant application to the US Bureau of Reclamation's Drought Resiliency Program.

The purpose of this letter is to express The Metropolitan Water District of Southern California's (Metropolitan) support for the Long Beach Water Department's (LBWD) FY 2021 Drought Resiliency Program grant application for their New Wells Alamitos 9A and 14 Project.

In partnership with local water agencies, Metropolitan is a statewide leader in implementing water conservation programs and progressive water resources such as wastewater recycling and groundwater recovery. Metropolitan has invested more than \$1.4 billion in these local resources, and our member agencies have invested many billions more.

The severity of California's recent drought, coupled with the extended dry period on the Colorado River and the projected long-term impacts of climate change underscores the need for continued diversification of Southern California's water resource portfolio and conservation efforts. Metropolitan's long-term Integrated Water Resources Plan (IRP) achieves diversification with an "all of the above" approach. This includes maintaining Colorado River Aqueduct supplies and restoring the reliability of State Water Project supplies, while increasing sustainable local resources such as groundwater to accommodate projected future growth.

Metropolitan and its member agencies work to ensure water supply reliability now and into the future. All new supplies and technologies are needed to help sustain our region's 19 million people and trillion-dollar economy.



## APPENDIX 3: DROUGHT CONTINGENCY PLAN RESOLUTION

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CHARLES PARKIN, City Attorney  
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Long Beach, CA 90802-4664

1 RESOLUTION NO. WD-1354

2  
3 A RESOLUTION OF THE BOARD OF WATER  
4 COMMISSIONERS OF THE CITY OF LONG BEACH  
5 AMENDING AND RESTATING THE WATER  
6 CONSERVATION AND WATER SUPPLY SHORTAGE PLAN  
7 AND RESCINDING RESOLUTION NO. WD-1286  
8

9 WHEREAS, a reliable, minimum supply of quality potable water is essential  
10 to the welfare of the people and economy of the City of Long Beach ("City"); and

11 WHEREAS, responsible management of water supplies in non-shortage  
12 conditions is wise and prudent for both water supply reliability and environmental  
13 stewardship; and

14 WHEREAS, effective and equitable management of limited water supplies  
15 during a water supply shortage minimizes the impact on the people and economy of the  
16 City; and

17 WHEREAS, water conservation is an important component of California's  
18 water policy for the future; and

19 WHEREAS, all reasonable efforts to conserve water should continue to be  
20 a high priority; and

21 WHEREAS, on September 21, 1995, the Board of Water Commissioners of  
22 the City of Long Beach ("Board") adopted Resolution No. WD-1071 entitled "A Resolution  
23 of the Board of Water Commissioners of the City of Long Beach Restating The  
24 Emergency Water Conservation Plan and Rescinding Resolution Nos. WD-990, WD-994,  
25 WD-1005 and WD-1020"; and

26 WHEREAS, on November 3, 2005, the Board adopted Resolution No. WD-  
27 1209 entitled "A Resolution of the Board of Water Commissioners of the City of Long  
28 Beach Adopting a Water Conservation and Water Supply Shortage Plan, and Rescinding



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1 Resolution No. WD-1071"; and

2 WHEREAS, on June 21, 2007, the Board adopted Resolution No. WD-1232  
3 entitled "A Resolution of the Board of Water Commissioners of the City of Long Beach  
4 Amending and Restating the Water Conservation and Water Supply Shortage Plan and  
5 Rescinding Resolution WD-1209"; and

6 WHEREAS, on December 17, 2009, the Board adopted Resolution No.  
7 WD-1266 entitled "A Resolution of the Board of Water Commissioners of the City of Long  
8 Beach Amending and Restating the Water Conservation and Water Supply Shortage  
9 Plan (the "Plan"), and Rescinding Resolution No. WD-1232"; and

10 WHEREAS, on July 7, 2011, the Board adopted Resolution No. WD-1286  
11 entitled "A Resolution of the Board of Water Commissioners of the City of Long Beach  
12 Amending and Restating the Water Conservation and Water Supply Shortage Plan, and  
13 Rescinding Resolution No. WD-1266"; and

14 WHEREAS, the Board wishes to continue to educate, support and enforce  
15 reasonable water conservation at all times not just during periods of imminent shortage or  
16 drought; and

17 WHEREAS, the Board now wishes to amend and restate the Water  
18 Conservation and Water Supply Shortage Plan;

19 NOW, THEREFORE, the Board of Water Commissioners of the City of  
20 Long Beach resolves as follows:

21 Section 1. Scope.

22 There is hereby established a Water Conservation and Water Supply  
23 Shortage Plan ("Plan").

24 Section 2. Objectives.

25 The objectives of the Plan are:

- 26 A. To prevent water supply shortages through aggressive and effective  
27 water management programs such as conjunctive use, water conservation, water  
28 education and use of reclaimed water;

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1 B. To minimize the impact of a water supply shortage on the City's  
2 population and economy;

3 C. To provide first for public health and fire protection and other  
4 essential services, then to provide for the economic health of the City, and then to  
5 provide for other uses of water; and

6 D. To ensure that water users who conserve water during normal-year  
7 hydrology and wet-year hydrology are not disadvantaged by the Plan during  
8 shortages.

9 Section 3. Notice.

10 When an Imminent Water Supply Shortage, a Stage 1 Water Supply  
11 Shortage, a Stage 2 Water Supply Shortage, or a Stage 3 Water Supply Shortage is  
12 declared by the Board, the Long Beach Water Department ("Department") shall provide  
13 notice to its customers. Said Notice shall include:

14 A. The effective date of the declaration;

15 B. The Prohibited Use of Water (PUoW) associated with the relevant  
16 supply shortage;

17 C. Information about rate increases, if any, resulting from the  
18 declaration; and

19 D. The importance of their taking additional voluntary actions to  
20 conserve water.

21 This Notice shall be published pursuant to California Government Codes  
22 Section 6063.

23 The Department will continue to educate its customers for the duration of  
24 the water supply shortage. The Department will communicate effectively with its diverse  
25 customer base.

26 Section 4. Prohibited Uses of Water at All Times.

27 The following uses of water are prohibited at all times:

28 A. Permitting the excess use, loss or escape of water through breaks,

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1 leaks or other malfunctions in the water user's plumbing or distribution system for  
2 any period of time after such escape of water should have reasonably been  
3 discovered and corrected;

4 B. Irrigating landscape with potable water at any time other than the  
5 hours after 4:00 p.m. and before 9:00 a.m. The hours as established shall take  
6 effect after notice of said changes are published in a local newspaper of general  
7 circulation, pursuant to California Government Code Section 6063;

8 C. Irrigating landscape or any other use of water in a manner that  
9 results in unreasonable runoff or waste, as determined by the General Manager of  
10 the Long Beach Water Department or the General Manager's designee  
11 (collectively, the "General Manager") (unless otherwise specified by the Board),  
12 where water flows onto adjacent property, non-irrigated areas, private and public  
13 walks, roadways, parking lots or structures;

14 D. Irrigating landscape during measurable rainfall in Long Beach, or at  
15 any time within forty-eight (48) hours afterwards, as reported by the National  
16 Weather Service;

17 E. Washing driveways, sidewalks, parking areas, patios, other outdoor  
18 impermeable surface areas, kitchens or objects such as kitchen non-skid mats  
19 with a hose unless using a water-conserving pressurized cleaning device as  
20 defined herein. A water-conserving pressurized cleaning device shall discharge  
21 water at a minimum of 1,000 pounds per square inch or rated at using less than  
22 three (3) gallons of water per minute. A simple spray nozzle does not qualify as a  
23 water-conserving pressurized cleaning device;

24 F. Washing a vehicle with a hose when the hose does not have a water  
25 shut-off nozzle or device attached to it or allowing a hose to run continuously while  
26 washing a vehicle;

27 G. Operating a fountain or other water feature that does not re-circulate  
28 the water;

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1 H. A hotel or motel failing to provide its customers the option of  
2 choosing not to have towels and linens laundered daily and/or failing to  
3 prominently display notice of this option in each bathroom and sleeping room  
4 using clear and easily understood language. The Department shall make suitable  
5 displays available;

6 I. Restaurants and all other commercial, industrial, institutional food  
7 preparation sites using pre-rinse heads having flow-rates greater than 1.5 gallons  
8 of water per minute;

9 J. Operating a commercial laundry system installed after November 3,  
10 2006, that does not recirculate wash and/or rinse water;

11 K. Operating a conveyor type car wash system that does not recirculate  
12 the wash and/or rinse water;

13 L. Installing a single-pass cooling systems in a building requesting a  
14 water connection after November 3, 2006;

15 M. Using potable water, rather than reclaimed water, after the General  
16 Manager has provided to the customer an analysis showing that reclaimed water  
17 is a cost-effective alternative to potable water and the customer has had ninety  
18 (90) days to make the conversion to reclaimed water;

19 N. Irrigating landscape using reclaimed water to the point that the  
20 landscape becomes saturated and irrigation waters flow from the landscape.

21 Section 5. Imminent Water Supply Shortage.

22 A. The Board shall declare an Imminent Water Supply Shortage by  
23 resolution when the Board determines, in its sole discretion, that a declaration will  
24 help to avoid or lessen the impact of an imminent water supply shortage. The type  
25 of event which may prompt the Board to declare an Imminent Water Supply  
26 Shortage may include, among other factors, a finding that its wholesale water  
27 provider calls for extraordinary water conservation.

28 B. In addition to the prohibited uses of water identified in Section 4, the

following uses of water are prohibited during a declared Imminent Water Supply Shortage:

(1) Serving drinking water to any customer in a restaurant or other public place where food is served, sold, or offered for sale unless expressly requested by the customer. The Department shall make suitable displays, alerting customers to this restriction, available to restaurants and these types of other public places;

(2) Irrigating landscape with potable water any day other than Tuesday, Thursday, or Saturday, except for very short periods of time for the expressed purpose of adjusting or repairing the irrigation system;

(3) Irrigating landscape with potable water for:

(i) More than twenty (20) minutes per authorized day if using stream rotator-type or gear driven sprinkler heads rated at emitting less than one (1) gallon per minute under recommended operating pressure; or

(ii) More than ten (10) minutes per authorized day if using sprinkler heads rated at emitting one (1) or more gallons of water per minute under recommended operating pressure;

Section 6. Stage 1 Water Supply Shortage.

A. The Board may, in its sole discretion, declare by resolution that a Stage 1 Water Supply Shortage exists and that the actions outlined in this Section are necessary in order to meet the Objectives of this Plan. The type of event which may prompt the Board to declare a Stage 1 Water Supply Shortage includes, among other factors, is a reduced allocation of water by the Department's wholesale water provider.

B. Prohibited Uses of Water in a Stage 1 Water Supply Shortage. In addition to the prohibited uses of water identified in Sections 4 and 5, the following uses of water are prohibited during a Stage 1 Water Supply Shortage:

(1) Irrigating landscape with potable water any day other than

Tuesday or Saturday, beginning on the first day of October through the end of the last day of the following March, except for very short periods of time for the expressed purpose of adjusting or repairing the irrigation system;

(2) Leaving a residential swimming pool and/or spa uncovered when not in use;

(3) Other prohibited uses as determined by the Board, in its sole discretion, after notice to customers.

Section 7. Stage 2 Water Supply Shortage.

A. The Board may, in its sole discretion, declare by resolution that a Stage 2 Water Supply Shortage exists and that the actions outlined in this Section are necessary in order to meet the Objectives of this Plan.

B. Prohibited Uses of Water in a Stage 2 Water Supply Shortage. In addition to the prohibited uses of water identified in Sections 4, 5 and 6, the following uses of water are prohibited during a declared Stage 2 Water Supply Shortage:

(1) Irrigating landscape with potable water any day other than Tuesday or Saturday, except for very short periods of time for the expressed purpose of adjusting or repairing the irrigation system;

(2) Other prohibited uses as determined by the Board, in its sole discretion, after notice to customers.

Section 8. Stage 3 Water Supply Shortage.

A. The Board may, in its sole discretion, declare by resolution that a Stage 3 Water Supply Shortage exists and that the actions outlined in this Section are necessary in order to meet the Objectives of this Plan.

B. Prohibited Uses of Water in a Stage 3 Water Supply Shortage. In addition to the prohibited uses of water identified in Sections 4, 5, 6 and 7, additional restrictions or prohibitions on the use of water may be imposed by the Board at its sole discretion.



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Section 9. Water Rates.

The Board may adjust water rates during a Board declared Stage 1, Stage 2, or Stage 3 Water Shortage subject to the then current Resolution fixing the Rates and Charges for Water and Sewer Service. Any increase in rates approved by the Board shall be subject to a public protest hearing as provided for in the California Constitution Article XIII.

Section 10. Sudden Catastrophic Water Supply Shortage.

When the General Manager determines that a sudden event has, or threatens to, significantly diminish the reliability or quality of the City's water supply, then the General Manager may declare a Catastrophic Water Supply Shortage and impose whatever emergency water allocation or conservation actions necessary to protect the reliability and quality of the City's water supply and in order to meet the Objectives of this Plan, until the emergency passes or the Board takes other action.

Section 11. Issuance of a Notice of Violation.

A. A "Customer" as defined in the Long Beach Water Department Rules, Regulations, and Charges Governing Potable Water, Reclaimed Water, Sewer Service and the Water Conservation and Water Supply Shortage Plan ("Department Rules, Regulations and Charges"), shall be the party in violation of this Plan when water associated with the Customer's account is used in a prohibited manner. For each separate and distinct violation of this Plan, the Customer may be served a Notice of Violation in accordance with the Department Rules, Regulations and Charges.

B. Each and every day a violation exists constitutes a separate and distinct offense.

C. Warning Letter: Prior to receiving a Notice of Violation, Customer shall first be served a Warning letter, in accordance with the Department Rules, Regulations, and Charges.

D. The amount of the PUoW Charge shall be as established by the City

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of Long Beach Board of Water Commissioners by Resolution and listed in the Department Rules, Regulations, and Charges.

Section 12. Reduce or Terminate Water Service.

Depending on the severity of the prohibited use of water and the seriousness of the water supply shortage or imminent water supply shortage, the General Manager may cause the installation of a flow restriction device or may have the water service terminated. The General Manager shall give fourteen (14) days' notice that these actions may be taken unless, in the General Manager's discretion, the severity of the misuse or the severity of the shortage mandates a shorter period of time, in which case the number of days for notice shall be at the General Manager's sole discretion.

The Customer shall pay the cost of restricting the flow or terminating the service and shall pay the cost of re-installing full service, prior to the restoration of full service.

Section 13. Satisfaction of the PUoW.

Upon service of a Notice of Violation and PUoW Charge, the Customer shall do the following:

A. Remedy the violation(s) no later than the date as specified on the Notice. Correcting the violation(s) shall not excuse or discharge payment of the PUoW Charge.

B. Pay the PUoW Charge no later than thirty (30) days from the date of issuance of the citation as specified on the Notice. Payment of a PUoW Charge shall not excuse or discharge the failure to correct the violation(s), nor shall it bar further enforcement action by the Department. Late charges shall be imposed for PUoW payments made after the payment due date. The late charge shall be assessed per standard Department practices, and will be imposed in addition to any outstanding PUoW Charge.

Section 14. Appeal of Notice of Violation.

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Any recipient of a PUoW Charge may appeal said violation in accordance with the Water Department Rules, Regulations, and Charges.

Section 15. Hearing Procedure.

The hearing of any appeal of a Notice of Violation shall be conducted in accordance with the Department Rules, Regulations, and Charges,

Section 16. Dismissal of Notice of Violation.

The General Manager may dismiss a Notice of Violation at any time if it is determined to have been issued in error or upon good cause.

Section 17. Reservation of Rights.

The rights of the Department shall be cumulative to any other right of the Department stated in this Plan, the Department Rules, Regulations and Charges, the Long Beach Municipal Code, or as provided for under State or Federal law.

Section 18. Exceptions.

The prohibited uses of water in this Plan are not applicable to that use of water necessary, as determined by the General Manager, for public health and safety or for essential governmental services such as police, fire, and other similar emergency services.

Section 19. General Provisions.

A. Nothing contained in this Plan shall be construed to require the Department to curtail the supply of water to any Customer when, in the discretion of the General Manager, that water is required by that customer to maintain an adequate level of public health and safety.

B. Any term not defined in this Plan which is defined in the then current Department Rules, Regulations and Charges shall have the meaning stated therein.

C. This Plan shall apply to all customers and property receiving water from the Department wherever situated, and shall also apply to all property and facilities owned, maintained, operated or under the jurisdiction of the various

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officials, boards, departments, bureaus or agencies of the City.

D. If any section, subsection, sentence, clause or phrase in this Plan or the application of it to any person or circumstances is for any reason held invalid, the validity of the remainder of this Plan or the application of such provision to other persons or circumstances shall not be affected. The Board declares that it would have passed this Plan and each section, subsection, sentence, clause, and phrase in it irrespective of the fact that one or more sections, subsections, sentences, clauses, or phrases or the application of them to any person or circumstances be held invalid.

Section 20. Approval of this Resolution.

On the effective date of this Resolution all prior Resolutions including Resolution No. WD-1286 relating to the Water Conservation and Water Supply Shortage plans of the Long Beach Water Department are hereby rescinded and superseded.

The Secretary of the Board of Water Commissioners shall certify to the passage of this Resolution and cause a copy of the Resolution to be published pursuant to Government Code Section 6061. This Resolution shall take effect thirty (30) days after the Secretary's certification.

I hereby certify that this Resolution was adopted by the Board of Water Commissioners of the City of Long Beach at its meeting on June 2, 2016, 2016 by the following vote:

Ayes: Commissioners: SHANNON; CORDERO;

SALTZGAVER; MARTINEZ

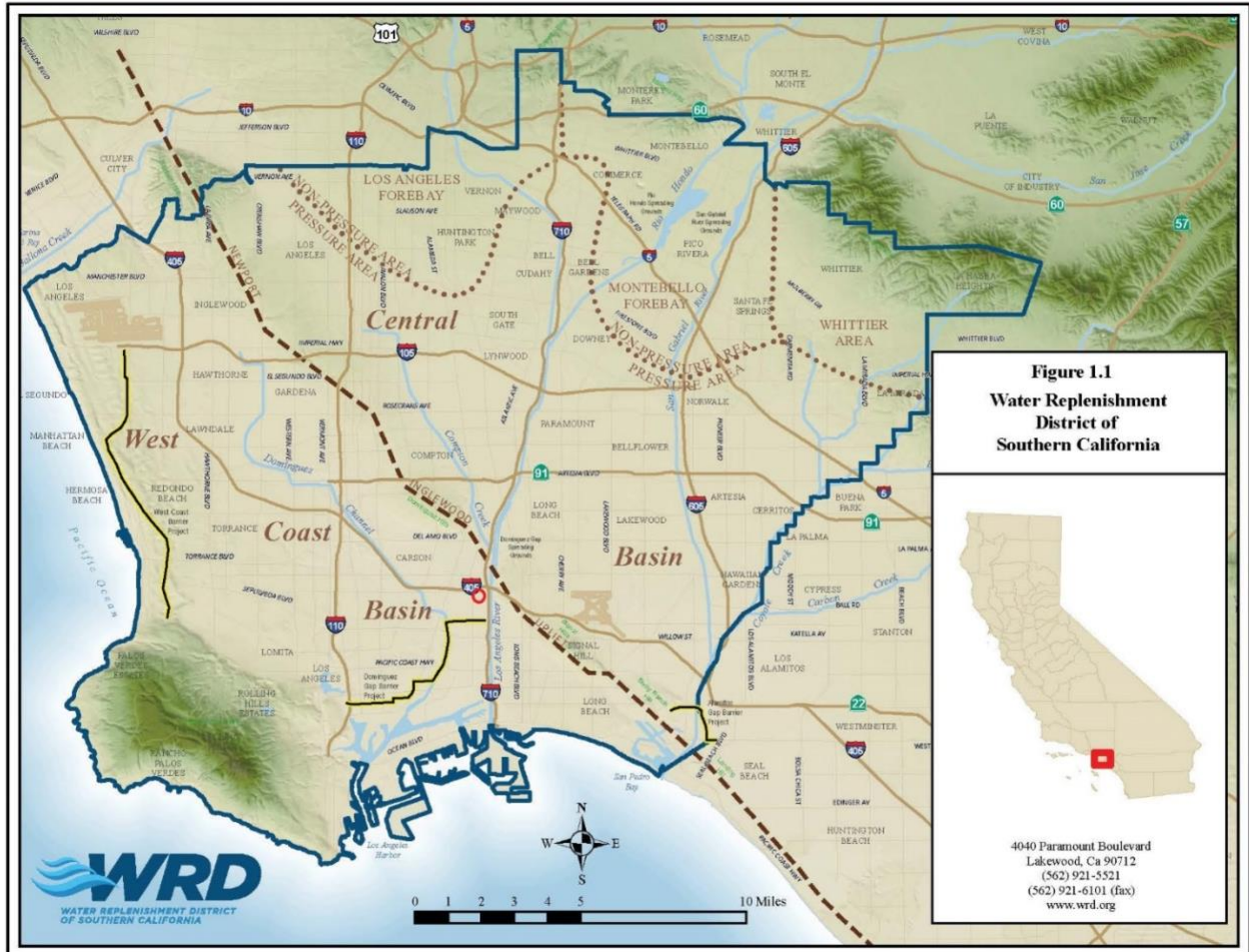
Noes: Commissioners: NONE

Absent: Commissioners: LEVINE

  
Secretary

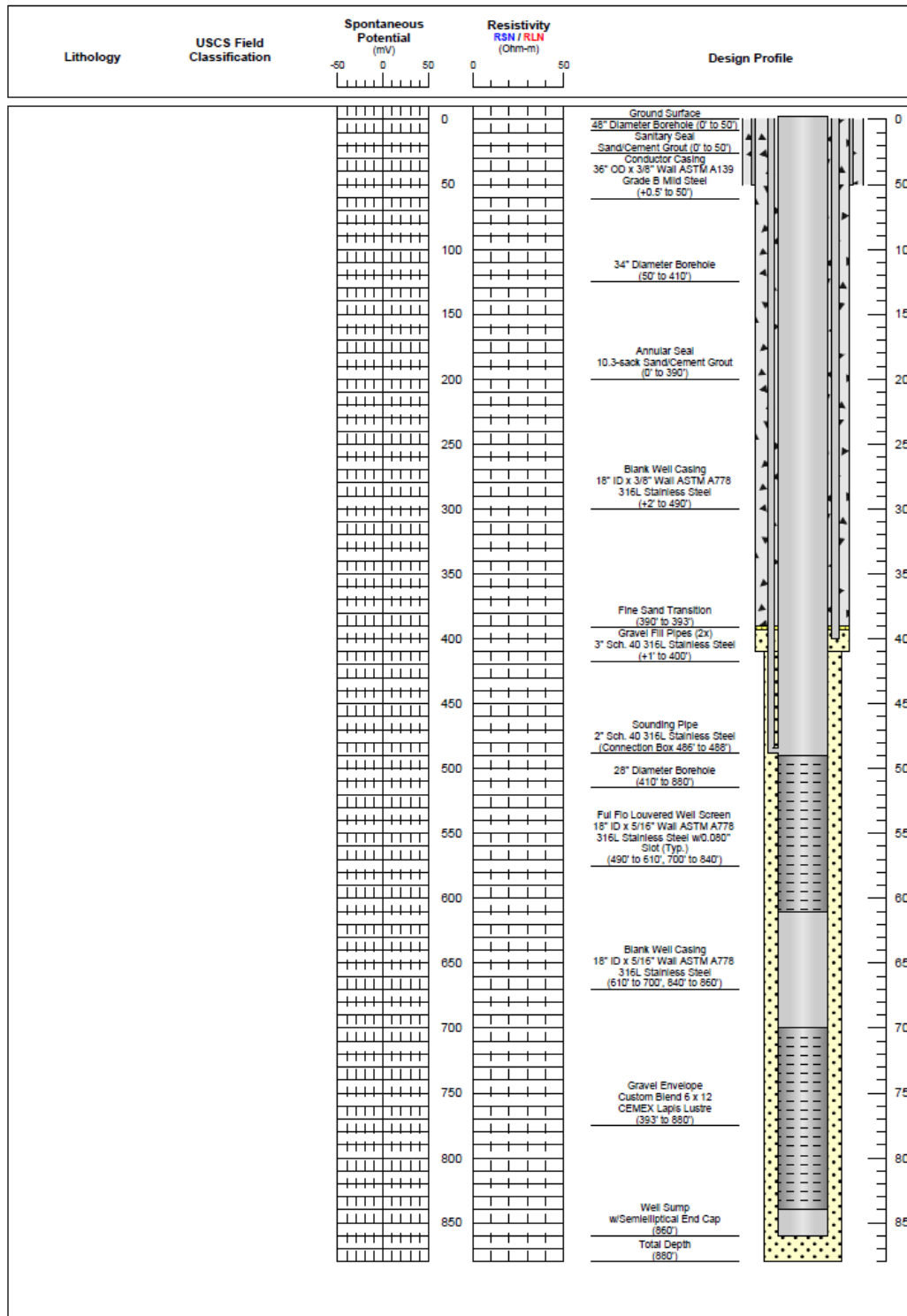
Board of Water Commissioners

## APPENDIX 4: WRD MAP WITH PROJECT AREA





## APPENDIX 5: WELL DIAGRAM



### CONCEPTUAL WELL DESIGN PROFILE

WELL SITING STUDY  
LONG BEACH WATER DEPARTMENT  
LONG BEACH, CALIFORNIA  
FEBRUARY 2019

BOREHOLE DIAMETERS (in): 48; 34; 28

BOREHOLE DEPTHS (ft): 50; 410; 880

SCREEN INTERVALS (ft): 490-610; 700-840

CASING DEPTHS (ft): 0-490; 610-700; 840-880

Notes:

DRAWN BY: K. MAKAR

APPROVED BY: R. KYLE



PROJECT NO.  
3008.001

FIGURE  
45