North Long Beach Wells 13 & 14 Project

BOR-DO-20-F002
WaterSMART: Drought Resiliency Project Grants for FY2020
Funding Group II

Prepared For:
Bureau of Reclamation
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A. Executive Summary

Date: October 16, 2019
City: Long Beach
County: Los Angeles County
State: California

Applicant Name: Long Beach Water Department
Project Length of Time: 28 months
Estimated Completion Date: February 2022
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 and well equipping. The proposed project is expected to take approximately 28 months to construct, with an estimated completion date of February 2022.

This project will replace two aging, low producing wells 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 and support and supplement the City's increasing water demands by production of approximately 6,947 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.

The proposed well is not located on a Federal facility.

B. Background Data

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 27 active groundwater wells; 923 miles of water mains; 6,501 fire hydrants; 33 storage tanks that hold 3.3 MG of potable water; one (5 pump) booster pump station located at 32nd 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, which include: 60,000 single-family homes, 14,800 duplexes, 96,900 apartment and condominium units, 1,100 dedicated landscape irrigation accounts, and 6,600 commercial, industrial and government accounts. Today 12,197 active customer accounts are located in SB 535 Disadvantaged Communities.

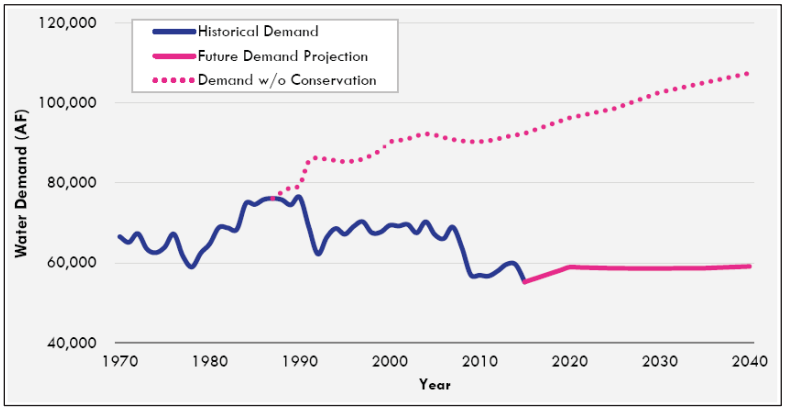
Figure 1: Map of Groundwater Basin Boundaries

LBWD currently receives its potable water supply from two sources: imported water through the Municipal Water District of Southern California (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.

Water conservation also acts as a water supply source for LBWD because it directly offsets the need to purchase imported water. During a water shortage, short-term water conservation measures essentially provide LBWD with an emergency water "supply" to compensate for reductions in wet-water supplies; very similar to purchasing expensive spot-market supplies during water shortages or investing in some other type of shortage-year supplies.

Recycled water also acts as an alternative water supply for LBWD because it directly offsets the need to purchase imported water or pump groundwater. Previously serving just one City park in the 1980s, the recycled water distribution system has expanded its customer base and now supplies more than 120 service connections.

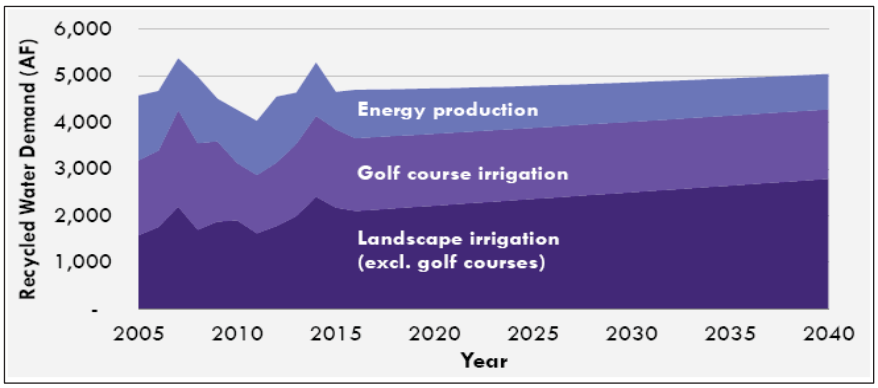
Figure 2: Conservation Reduces Dependence on Imported Water Supply



LBWD recycled water customers include public and private irrigation customers, such as parks, schools, golf courses, cemeteries, and nurseries. The recycled water is also used by THUMS, a consortium of oil companies, which uses the recycled water to re-pressurize offshore oil-bearing strata in order to prevent land subsidence. Wastewater is collected by LBWD and other agencies, delivered to the Long Beach Water Reclamation Facility owned by the Los Angeles County Sanitation District (LACSD), but operated by LBWD. The

treated effluent goes through an LBWD pump station and into the LBWD recycled water distribution system. The use of recycled water in 2015 was approximately 4,645 acre-feet per year.

Figure 3: Increase in Demand for Recycled Water per LBWD's 2015 UWMP



In 2015, LBWD purchased 46% of the City's water supply from MWD and supplied 43% of the City's water from groundwater in the Central Groundwater Basin. The remaining 11% of water used is recycled. According to the LBWD's 2015 Urban Water Management Plan, in 2015 the City used 32,500 acre-feet of water from local groundwater production, and 35,100 acre-feet of water delivered from MWD in 2015. The total water usage was 76,983 acre-feet. 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 acre-feet in 2015 to 20,562 acre-feet in 2040. The total water demand is expected to increase from 55,206 acre-feet in 2015 to 59,106 acre-feet in 2040.

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. The planning efforts, such as the Water Management Plan mentioned above and two more recent plans, mentioned below, assess existing infrastructure, estimate future demand, and propose and prioritize capital projects. As a result, rehabilitation projects were completed for ten production wells from 2013 through early 2018, and three more rehabilitation projects are scheduled for completion by 2020.

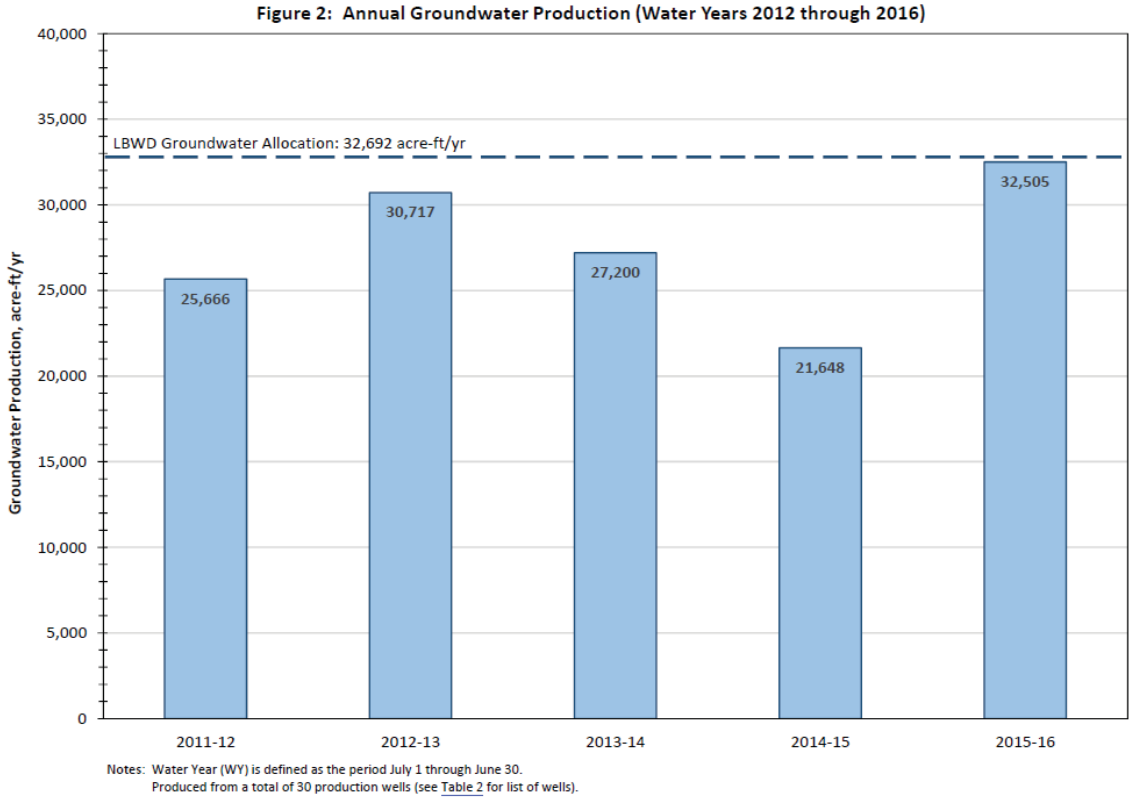
LBWD has rights to pump 32,693 acre-feet per year (AFY) of groundwater from the Central Basin Aquifer. LBWD also has stored water accounts and is in the process of developing groundwater augmentation projects to increase its allowable pumping allocation. The LBWD total water demand is currently close 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, the City's 27 wells currently produce less than the LBWD's allocated groundwater capacity of 32,693 AFY as shown in Figure 4 below. 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. Two of the wells identified for replacement is the North Long Beach Wells 4 & 9 located in Jackson Park West due to age and very low productivity. The existing wells are 83 and 63 years old, respectively, and are at about half of their discharge capacities. In Water Year (WY) 2016, Well 4 produced 726 AFY and Well 9 produced 393 AFY of groundwater.

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. **The study also determined that existing wells need to be rehabilitated and at least seven new wells need to be constructed to maintain the existing level of water production reliability through 2032.** The study identified North Long Beach Wells 13 & 14 as a replacement for North Long Beach Wells 4 & 9.

There have 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, and has planned the addition of production Wells 13 & 14 to alleviate the City's reliance on MWD's water supply.

LBWD was recently awarded a $750,000 grant from Reclamation for the West Coast Basin Well 1 project. LBWD began working on this project and is now familiar with all Reclamation's requirements and procedures to successfully implementing a project.

Figure 4: Well Water Production



C. Project Location

The Wells 13 & 14 project area is located in the City of Long Beach, California, which is directly adjacent to the City of Carson on the west. The Collection Main and New Well Site Study determined the siting for Wells 13 & 14 to be in the western and eastern portions of Jackson Park, respectively. Jackson Park is City owned and is located at 1432 Jackson Street in the City of Long Beach. The project latitude is {33°51'6"N} and longitude is {118°10'24"W} as shown in Figures 1 and 5.

Figure 5: Location Map

D. Technical Project Description and Milestones

Construction of the proposed new groundwater production wells for the Central Basin Aquifer will increase the reliability of the LBWD's water supply and maintain its pumping and treatment capacity at LBWD groundwater allotment.

The proposed well locations, as shown in Figure 5, are of high yield. 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 North Long Beach Wells 13 & 14 are new and will be equipped with modern equipment, a reasonable pumping rate of 2,500 gpm for each is used in this grant application. This results in 4,033 AFY, for a total of 8,066 AFY for the two wells. Since the two new wells are replacements for two existing aging wells, the production of the two existing wells is subtracted from the 8,066 AFY for a total production of **6,947 AFY** for the two new wells. The proposed well locations are within 60 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 North Long Beach Wells 13 & 14 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 HP electric motors. Please see Appendix 5 for well diagram.
- Connect the wells to City's collection main system via new piping to deliver well water to the City's treatment plant.

The North Long Beach Wells 13 & 14 Project is in the design phase. Construction will be completed in less than two years after design has been completed. All preliminary work has been completed, including the following:

1. Site determination
2. Feasibility study
3. Design criteria and parameters
4. Design is in progress

Please see the proposed detailed Estimated Project Schedule under Evaluation Criterion D: PROJECT IMPLEMENTATION for activities specific to construction of Wells 13 & 14.

The overall construction of the North Long Beach Wells 13 & 14 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 a masonry block building. In addition, the project has designs for civil work for underground treated water piping, storm drain piping with grading and drainage, discharge to waste piping, and accommodations for vehicular traffic within the site.

E. Performance Measures

Wells 13 & 14 and associated facilities are being designed to allow for automatic operation with remote monitoring and supervision. The wells will be tied together with the SCADA workstations via radio and fiber-optic network, which supports the other groundwater wells in the LBWD's distribution system.

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, during water years (WY) 2012 through 2016, the overall production capacity of LBWD's well field ranged from approximately 21,648 to 32,505 AFY as shown in Figure 4 above. Taking the individual water production for each of the five years, the resulting average well water production is 27,547 AFY per WY. LBWD will use this five-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. Upon 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 27,547 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 BOR.

2) **Total Groundwater Served to Customers:** LBWD will utilize the five-year average well water production, which, as indicated above, is 27,547 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.

F. 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?

The proposed project has an expected life of 40-50 years and will have a net production of 6,947 AFY 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?

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 North Long Beach Wells 13 & 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 a total of 8,066 AFY for the two wells. Since the two new wells are replacements for two existing aging wells, the production of the two existing wells is subtracted from the 8,066 AFY for a total production of **6,947 AFY** for the two new wells.

What percentage of the total water supply does the additional water supply represent? How was this estimate calculated?

According to the latest 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 and the SWP. As indicated above, the five-year average well water production is 27,547 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 27,547 AFY per WY to 35,613 AFY, which exceeds the allocated rate of 32,693 AFY for LBWD from the Central Basin. However, LBWD has stored water accounts and is in the process of developing groundwater augmentation projects to increase its allowable pumping allocation. Therefore, it is assumed that LBWD pumping will be increased by the full capacity of the new Wells 13 & 14 thereby increasing groundwater production by 25% above the five-year average. In addition, imported supplies would decrease by the same 25%.

Table 1: Long Beach Water Department Percentage of Water Supply Comparison (based on five-year average)

Long Beach Water Department Percentage of Water Supply Comparison		
Water Supply Sources	**% of Five-Year Average Annual Supply**	**% of Average Annual Supply Post-Project**
Imported Water	52	**46**
Local Supply (Groundwater)	36	**42**
Recycled Water	12	**12**
TOTALS	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 less dependence on imported water, drought resiliency. 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 currently not available to the LBWD residents. The locally sourced water will provide a less costly source than that of the current imported and recycled water, drawing the overall cost of the water supply down, 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)?

The proposed project will increase water management efficiency by allowing the LBWD to continue their program of supporting the City with 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.

If so, how will the project increase efficiency or operational flexibility?

The proposed project will allow for the replacement of two very old, low production existing wells and replace them with two new high producing wells. The additional production, combined with modern mechanical, control, and communications equipment, will increase efficiency and result in significant operational flexibility.

What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated?

The proposed project will allow up to 34,494 AFY to be pumped annually from a locally control groundwater aquifer and eliminate the import of 6,947 AFY, based on the five-year average discussed above, from the SWP.

What percentage of the total water supply does the water better managed represent? How was this estimate calculated?

LBWD will be able to maximize the use of well productions and increase from a five year average of 27,547 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 approximately **6%** 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 imported water supplies.

This project will not only benefit LBWD, but it will also benefit the region by reducing the overall 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?

LBWD is committed to researching and collecting information about the groundwater it will collect from the proposed site, in partnership with the Water Replenishment District of Southern California (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 North Long Beach Wells 13 & 14, which are new, and are expected to produce a capacity of 2,500 gallons per minute each (8,066 AFY total). The LBWD plans to use the groundwater as a primary supply. The estimate was calculated using Central Basin aquifer measurements in the Collection Main and New Well Site Study.

Physical Description of Well: North Long Beach Wells 13 & 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 1).

LBWD has the rights to pump 32,693 acre-feet per year 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 Water Replenishment District of Southern California (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 for Long Beach.

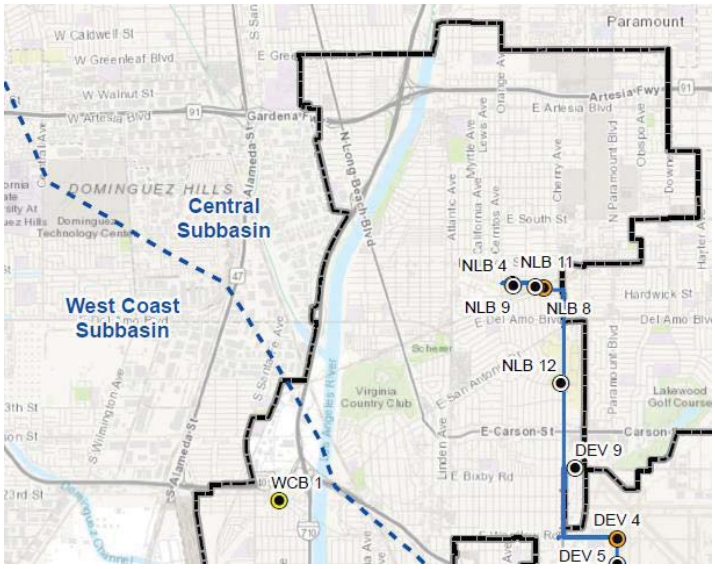
Central Basin Aquifer Wells near the Project Site: Table 2 below from the 2019 Collection Main and New Well Site Study has information on the all of LBWD's wells. Figure 6 shows the underground basins and LBWD's wells near the proposed project site. As discussed above, the Central basin is not experiencing aquifer overdraft or land subsidence.

Table 2: Southern California Edison 2018 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 [1]				
Commission 17	27-Sep	15	248	282	690
Commission 18	26-Sep	14	184	216	565
Commission 19	Offline [1]				
Commission 20	Offline [1]				
Commission 21	27-Sep	15	200	234	1,246
Commission 23	Offline [1]				
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 [1]				
Wilson 1A	3-Oct	15	168	203	579
Wise 1A	3-Oct	17	208	248	1,040

[1] Offline during the test date

Figure 6: Map of Underground Basin LBWD 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. 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 water year, 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

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 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 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, Metropolitan 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 an 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 North Long Beach Wells 13 & 14 that penetrate the existing Central Basin aquifer to capture clean potable water for city residents and businesses is supported by the UWMP as explained above. The City also completed the 2019 Collection Main and New Well Site Study, which specifically identifies the North Long Beach Wells 13 & 14 as critical water infrastructure projects for the City.

Describe how the proposed project is prioritized in the referenced drought plan.

North Long Beach Wells 13 & 14 were ranked as numbers one and two in 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.

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?

2014 was one of the driest years in California's recorded history, and, faced with record drought conditions in 2015, California Governor Jerry Brown declared a State of Emergency, and announced California's first set of statewide mandatory water restrictions. Having had major ongoing droughts in recent years, LBWD has experienced a variety of drought impacts, such as potential shortages of drinking water supplies, increased risk of wildfires, and environmental concerns. Impacts include the following:

Water Supply Shortage. As noted throughout this application, the biggest single source of LBWD's potable water is imported from MWD, 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. By the end of 2015, the Sierra Nevada Snowpack held only 8% of its historical average. Southern California is expected to experience an increase in regional demands in the years 2015 through 2035 as a result of population growth. Increased population necessitates increases in water supply.

Increased Risk of Wildfires. Southern California in December 2017 experienced the largest wildfire ever recorded in the State and each decade since the mid-20th century, and 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 trees and plants that have been dried burn more quickly.

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.

California recent drought had a devastating impact on all aspects of the state. The economic impact of the drought to agriculture in California was an estimated $2.7 billion and 21,000 total job losses in 2015, alone. The loss of hydropower between October 2011 and October 2014 cost Californians approximately $1.4 billion, as hydropower in the state was roughly cut in half. This lost hydropower was made up with the purchase and combustion of additional natural gas. The electricity ratepayers spent an additional $1.7 billion to purchase natural gas over the drought period, which resulted in an additional 13 million tons of CO2 emitted into the air— a 10% increase in total annual CO2 emissions from California power plants, thus having a detrimental impact on the state's air quality.

In an L.A. Times editorial published in March 2017, Jay Famiglietti, Senior Water Scientist at the NASA Jet Propulsion Laboratory and a professor of Earth System Science at University of California, Irvine, stated that California had only one year of water stored in its reservoirs. The severe drought has depleted snowpack, lakes and rivers — affecting our water supply and the recreational opportunities and related tourism sectors (lodging, food, retail) that these resources provide.

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.

The California drought **severely affected forestry** and the **wildlife** that inhabits that **environment**. Of the 85 million acres in California classified as wildlands, nearly 17 million are commercial forest land, approximately half of which are owned by the government. New research using high-tech tools to measure the moisture in trees found that 120 million trees across nearly every part of California are at risk of dying. The California Department of Forestry and Fire Protection (CAL FIRE), reported ***29 million confirmed dead trees****. Governor Jerry Brown has issued a state of emergency* in California because *trees* are *dying*, creating more fuel for wildfires. A census by the U.S. Forest Service found 22 million *trees* are *dead* because of the drought, greatly **increasing the risk of wildfire**. CAL FIRE has determined that trees and

vegetation play an important role in the vitality of California urban communities, affecting **property values, energy consumption, air quality, noise pollution, and wildlife**.

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.

A 2015 study that analyzed multiple levels of atmospheric pressure concluded that climate change worsened California's dry season by up to 20%. 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. 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.

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.

E.1.4. Evaluation Criterion D — Project Implementation

The proposed project is 100% capable of proceeding into a financial assistance agreement with the Bureau of 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.**

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 29 groundwater wells. The Public Works Department has more than 150 employees to support operating activities and construction projects and has an annual operating budget slightly over $100 million supporting the 7th 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 and 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 3: Estimated Project Schedule

Estimated Project Schedule			
No.	**Task / Milestone**	**Start Date**	**Completion Date**
1.	**Preliminary Design**		complete
2.	**Environmental Review**	In Process	November 2020
3.	MND Approval	Sept 2020	November 2020
4.	**Design Consultant Contract**		complete
5.	**Design Period- Part 1 (Drill and Test Well)**	In Progress	April 2020
	a 90% Design Submittal	February 2020	March 2020
	b Outside Agency Review	March 2020	March 2020
	c 100% PS&E Submittal	April 2020	April 2020
6.	**Public Bid Process- Part 1**	Feb 2020	March 2020
7.	**Award Constr. Contract- Part 1**	March 2020	April 2020
8	**Construction- Part 1 (Drill and Test-Pump Well)**	**April 2020**	**October 2020**
9	**Design Period- Part 2 (Well facility and site)**	**October 2020**	**May 2021**
	a 30% Design Submittal	October 2020	November 2021
	b 60% Design Submittal	December 2021	February 2021
	c Building Department Review	March 2021	March 2021
	d Outside Agency Review	March 2021	April 2021
pr	e 100% PS&E Submittal	April 2021	May 2021
11	**Part 2: Public Bid Process**	**June 2021**	**July 2021**
12	**Part 2: Award Constr. Contract**	**August 2021**	**August 2021**
13	**Part 2: Construction Period**	**September 2021**	**February 2022**
14	**Project Complete**		**February 2022**

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, Long Beach Water Department, California Department of Water Resources and State Water Resources Control

Board Division of Drinking Water (DDW) and City of Long Beach Department of Public Health. The following permits are required for operation of the wells:

- Southern California Edison: The site will require new 480-volt 3-phase electric service to operate electric motors for the well pumps for Wells 13 & 14 in addition to operation of the building. The service permit will be obtained in the design phase of the project.
- State Water Resources Control Board (SWRCB): A general permit to discharge storm water associated with construction activity is required and will be obtained upon completion of the project
- 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.

Identify and describe any engineering or Design Work performed specifically in support of the proposed project

A feasibility study has 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 already retained a consultant that is currently engaged in the design of the project. As indicated in the above schedule, 90% plans are expected in early 2020.

Describe any new policies or administrative actions required to implement the project.

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 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 Metropolitan Water District of Southern California, 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 successful water conservation methods.

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 North Long Beach Wells 13 & 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 Colorado River Aqueduct and the State Water Project (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 North Long Beach Wells 13 & 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.

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 construct two new groundwater wells, which will reduce our reliance on imported water supplies by up to 6,947 AFY each year. That 6,947 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 North Long Beach Wells 13 & 14 Project is in keeping with the DOI goal of "Construction of Infrastructure".

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, the North Long Beach Wells 13 & 14 Project 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 preliminary study and design phases 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 September 19, 2019, LBWD is committed to providing the remaining matching fund to complete this project effective 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 has completed the feasibility study for the project in March 2019. Therefore, we are NOT including these amounts as part of the project cost since the date for this work is prior to July 2019, the permissible date for inclusion of prior 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 estimated cost for the design phase is $650,000.

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 4: Total Project Cost

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	**$7,385,000**
Costs to be paid by the applicant	**$ 750,000**
Value of third-party contributions	**$ 0**
Totals	**$ 8,135,000**

Table 5: Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT	%
Non-Federal Entities		
LBWD	**$7,385,000**	
Non-Federal Subtotal	**$7,385,000**	**91%**
Other Federal Entities		
None	**$ 0**	
Other Federal Subtotal	**$ 0**	
REQUESTED RECLAMATION FUNDING	**$ 750,000**	**9%**

Table 6: Project Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		QUANTITY TYPE	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				
N/A				
Fringe Benefits				
N/A				
Travel				
N/A				
Equipment for both wells				
Well Equipment		1	LS	$1,400,000
Electrical and SCADA Equipment		1	LS	$1,000,000
Well Discharge Piping		500	LF	$400,000
Discharge to Waste Piping		1	LS	$200,000
Supplies/Materials				**$3,000,000**
N/A				
Contractual/Construction				
Design Consultant				
Design and Environmental Documentation	$650,000	1	LS	$650,000
Construction Biddings through Contract Award	$75,000	1	LS	$75,000
Construction Management Support (includes reporting)	$600,000	1	LS	$635,000
Construction Inspection / Hydrogeological Services	$300,000	1	LS	$300,000
Design Consultant Total				**$1,660,000**
Construction Contractor				
Mobilization, de-mobilization & cleanup		1	LS	$200,000
Permitting Fees		1	LS	$100,000
Storm Water Prevention Pollution		1	LS	$50,000
Environmental Mitigation During Construction		1	LS	$50,000
Well Construction		1	LS	2,300,000
Building Improvements		1	LS	$400,000
Lighting (Inside Building and outside)		1	LS	$30,000

Sound Barrier		500	LF	$100,000
Hardscape		125	CY	$100,000
Fencing		1	LS	$25,000
Misc. Site Works Improvements		1	LS	$100,000
Furnish O&M Manual		1	LS	$10,000
Construction Contractor				**$3,465,000**
Other				
None				$0
TOTAL DIRECT COSTS				**$2,890,000**
Indirect Costs				
BOR Environmental Review			**LS**	**$10,000**
Type of rate				
TOTAL ESTIMATED PROJECT COSTS				**$8,135,000**

C. Budget Narrative

Equipment

The project will require the purchase of a substantial amount of equipment as detailed in Table 6 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 has been awarded and this contract 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 6 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 6 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 $10,000 has been stipulated in the project budget as reflected in Table 6.

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 6 above. Since the NEPA documents will be prepared by the LBWD consultant, an allocation of $10,000 has been stipulated in the project budget as reflected in Table 6.

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 6 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 Bureau of Reclamation.

Total Costs

The project's total cost is **$8,135,000**. The federal cost share amount is $750,000 (about 9%) and the non-federal cost share amount is $7,385,000 (over 91%).

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 nosie during construction. Contractor will be required to follow City ordinances to reduce impact on the community.

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, Long Beach Water Department, California Department of Water Resources and State Water Resources Control Board Division of Drinking Water (DDW) and City of Long Beach Department of Public Health. The following permits are required for operation of the wells:

- Southern California Edison: The site will require new 480-volt 3-phase electric service to operate electric motors for the well pumps for Wells 13 & 14 in addition to operation of the building. The service permit will be obtained in the design phase of the project.
- State Water Resources Control Board (SWRCB): A general permit to discharge storm water associated with construction activity is required and will be obtained upon completion of the project
- 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.